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NOTICE.

For convenience of reference, all volumes of the new (imperial octavo) series which began in 1898 are numbered in continuation of the old demy octavo series. Vols. I-XXVII. Thus Vol. I of the imperial octavo series=Vol. XXVIII of the old series, and the present Vol. LVIII corresponds to N.S. Vol. XXXI.

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MINUTES OF THE ANNUAL GENERAL MEETING,

TUESDAY JANUARY 24TH, 1928.

HELD AT 52, UPPER BEDFORD PLACE.

Mr. H. J. E. PEAKE, M.A., *President, in the Chair.*

The Minutes of the last Annual General Meeting were read and confirmed.

The PRESIDENT appointed Mr. W. BARNARD and Mr. W. B. THOMPSON as Scrutineers, and declared the ballot open.

The HON. SECRETARY read the Report of the Council for 1927, which was accepted.

The HON. TREASURER read the Financial Report for 1927, which was also accepted.

The PRESIDENT then read his Address on "The Introduction of Civilization into Britain," illustrated by lantern slides.

VOL. LVIII.

B

MUNSELL

Q. & A.

R. B. L.

The SCRUTINEERS delivered their Report, and the following were declared duly elected as Officers and Council for 1928-29 :—

President.—Prof. J. L. MYRES, M.A., D.Sc., F.B.A., F.S.A.

Vice-Presidents.

C. O. Blagden, M.A.

Prof. H. J. Fleure, D.Sc.

P. E. Newberry, O.B.E., M.A.

Hon. Secretary.—E. N. Fallaize, B.A.

Hon. Treasurer.—G. D. Hornblower, B.A., O.B.E.

Hon. Editor.—H. J. Brannholtz, M.A.

Council.

H. G. Beasley.

M. C. Burkitt, M.A.

K. de B. Codrington, M.A.

Miss M. E. Durham.

G. A. Garfitt.

Prof. R. Ruggles Gates, Ph.D.

H. S. Harrison, D.Sc.

W. L. Hildburgh, Ph.D.

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Prof. F. G. Parsons, F.R.C.S.

Capt. G. Pitt-Rivers, B.Sc.

S. H. Ray, M.A.

Mrs. C. G. Seligman.

F. C. Shrub-sall, M.A., M.D.

Chas. Singer, M.D.

Rev. E. W. Smith.

E. Torday.

S. Hazzledine-Warren, F.G.S.

R. W. Williamson, M.Sc.

A hearty vote of thanks to the President for his Address was proposed by Professor J. L. MYRES and seconded by Dr. CHAS. MYERS, who asked in the name of the Institute that the President would allow it to be published in the Institute's *Journal*, and this was carried by acclamation.

The Institute then adjourned.

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REPORT OF THE COUNCIL FOR THE YEAR 1927.

IN presenting its Report for the year 1927, the Council is able again to record satisfactory progress.

It has every reason to believe that a further advance has been made in the recognition of the Institute's work as of public utility, while the value of Anthropology as a subject of research, an intellectual discipline, and a science of fundamental importance in its practical application to affairs, continues to gain wider appreciation. This is shown more particularly in the increasing interest taken by the general public in the broader aspects of investigation into the history and culture of Early Man, and in the ethnological aspect of problems arising out of the administration of the affairs of the peoples of non-European culture.

The Council must once more place on record its indebtedness to the Trustees of the Laura Spelman Rockefeller Trust for their generous financial assistance by which it has been possible to extend the Institute's work in a manner which the ordinary funds at its disposal would not permit. In this connection attention may be called to the improvement in the Library service made possible by the engagement of a Librarian, the size of the *Journal* and number of illustrations, the enlargement of *Man*, and the annual issue of special publications.

Before passing to the record of the year's work, the Council would wish to express its regret at the resignation of Dr. F. C. Shrubbsall from the office of Honorary Treasurer, owing to the pressure of other duties, after seven years' service. His long experience of the management of the Institute's affairs and intimate acquaintance with its work have enabled him to guide the financial policy of the Institute with conspicuous success at a time when, owing to the purchase of new premises, heavy demands were made upon the readiness and foresight of those responsible for the administration of the Institute. For this the Council and the Institute as a whole are deeply indebted to Dr. Shrubbsall.

The Membership of the Institute shows a net increase of 28 during the year -- a figure which is disappointing when compared with those of recent years. The low figure is, however, due to the large number of deaths and resignations, and the

fact that 69 new Fellows were elected, as against 57 in the preceding year, is eminently satisfactory. The details are as follows :—

—			Total, Jan. 1st, 1927.	Loss by death or resignation.	Since elected.	Total, Jan. 1st, 1928.
Honorary Fellows	...	...	37	3	2	36
Local Correspondents	...	...	18	1	1	—
<i>Deduct Ordinary Fellows</i>	...	...	2	—	—	16
Affiliated Societies	...	...	4	—	1	5
Ordinary Fellows :—						
Compounding	...	...	45	2	1	44
Subscribing	...	...	597	39	68	626
			699	45	73	727

The following have been elected Honorary Fellows : Dr. Snouck Hurgronje and the Rev. H. A. Junod.

Among those of whom the death is recorded with regret are :—

Dr. R. W. Felkin (elected 1889) : Dr. Manouvrier (1886) : Dr. John Brownee (1919) : Sir Philip Hamilton Grierson (1911) : Dr. E. S. Hartland (1897) : Sir H. H. Johnston (1885) : Mr. Edwin Ransom (1868) : Rev. H. Hutchinson (1898) : Mr. W. J. Knowles (1881) : and Mr. V. H. Ferguson (1922).

The Council has also been informed of the deaths of Professor M. Benedict (1892 : d. 1920) and Professor Gerland (1892 : d. 1919), not previously reported.

PREMISES.

No attempt has been made to dispose of any of the accommodation which might be made available for letting in the Institute's premises since the tenancy of the Eugénie Education Society terminated. The additional rooms have been found of great use when it has been necessary to hold two meetings simultaneously, for small exhibitions of specimens, additional reading rooms, and for other purposes. One room is being adapted for use as a lantern-slide and photograph room. Accommodation has also been provided for the secretarial work of the Folk-lore Society, and the Lecture Room continues to be used by the British Philosophical Society and the British Psychological Society. The books of the latter Society continue to be accommodated in the Library and are available to the Fellows of the Institute for consultation. Up to the present the financial position has been

such as to warrant the retention of the additional space thus utilized, but should there be any change in the situation owing, for instance, to the lapse of the Laura Spelman Rockefeller subsidy, there should be no difficulty in adding to revenue by letting the whole or part of this accommodation.

HOUSING FUND.

During the year a slight reduction has been made in the amount of the deficit on the Housing Fund, which now stands at £371 17s. 4*d.* The Council would be glad if a further effort could be made to clear the account. The supplementary appeal issued at the end of last year produced a further sum of £19 3s. in 1927.

PUBLICATIONS.

Two parts of the *Journal* were issued during the year, vol. lvi (iii) and vol. lvii (i). Office sales realized £115 for vol. lvi (ii) and £136 for vol. lvii (ii), as against £102 and £141. The office sales of *Mon* realized £176 15s. 7*d.*, as against £198 12s. in the preceding year. A reference to the Revenue Account will show that the total receipts for *Mon* (sales and subscriptions) were £146 as against £515 6s. 10*d.* in 1926, when receipts and expenditure practically balanced. The publication of ten enlarged monthly numbers during 1927 has increased the cost for the year to £537, the *Mon* account thus showing a deficit of £91.

In the coming year it will be possible to ensure that the publication of *Mon* should not be a serious charge on the general revenue of the Institute by adjusting the issue of enlarged numbers according to the receipts, and, if necessary, by utilizing the allocation from the Laura Spelman Rockefeller Grant. The policy of enlarging *Mon*, however, has been fully justified by results: and it is hoped that it will not be necessary to restrict it unduly. Indeed, the publication of double numbers of *Mon* at frequent intervals has added much more than proportionately to its value. It has made possible the ready issue of urgent or topical matter and has reduced delay in the rotation of printing papers which, however valuable they may be, do not demand immediate publication. It would, therefore, be unfortunate if these advantages were lost. The Council, therefore, urges Fellows to help in increasing the number of subscribers and the sales in order to avert the necessity of reverting to the former conditions of publication.

In regard to "Occasional Publications," the second part of Mr. Frankfort's *Studies in Early Pottery of the Near East* has been published during the year. The fact that the estimate for printing was largely exceeded owing to circumstances which could not be foreseen, has made it necessary to postpone the

issue of Professor Parsons' monograph on *Anglo-Saxon Skulls* which had already been accepted for publication, until next year.¹

Twelve monthly numbers of the *Indian Antiquary* have been issued during the year. Sir Richard Temple continues to act as Editor-in-Chief, assisted by an Indian Advisory Editor and by Mr. Oldham, who has accepted that office, left vacant by the lamented death of Mr. S. M. Edwards on January 1st, 1927. Much valuable matter bearing upon the archaeology, epigraphy, and ethnology of India appears in the pages of this periodical, and the Council would remind Fellows that, although issued from Bombay, subscriptions are received at, and copies may be obtained from, the offices of the Institute.

LAURA SPELMAN ROCKEFELLER GRANT.

The third instalment of the Laura Spelman Rockefeller Grant was duly received. In accordance with the previous decision of the Council, it was allocated to the salary of the Librarian, expenditure on the Library, and to the *Journal*, *Map*, and *Occasional Publications*. It must be remembered that this grant has been made to the Institute on the condition that it should be expended on any extensions of the Institute's work which the ordinary income is not adequate to meet: and it may be recalled that the grant took the form of a lump sum payable by instalments spread over a period of five years. The subsidy will, therefore, come to an end in two years' time. The object of the Trustees as expressed when the grant was made was to stimulate the activities of the Institute in the hope that at the end of the period of subsidy it would have attained a position to render unnecessary further financial assistance towards such additional work as may have been undertaken. Although the Institute has made great progress in the last three years, that point has not yet been attained.

LIBRARY.

The Council regrets to record the loss of the services of Mr. Gordon Childe on his appointment to the Abercrombie Chair of Archaeology in the University of Edinburgh. The Council is deeply indebted to Mr. Childe for his efficient services at a time when the Library was greatly disorganized by the removal to new premises. The vacancy has been filled by the appointment of Mr. P. Gaskin.

The Report of the Librarian is as follows:—

The Library contains some 5,500 books, 3,500 bound periodicals, and 3,000 pamphlets. There are, in addition, about 2,500 unbound periodicals which have been catalogued and 1,500 pamphlets in process of being classified and catalogued.

¹ *Anglo-Saxon Skull Contours*, by Professor Parsons, in the form of a portfolio containing 66 plates, was published in June, 1928.

The accessions for the year were 447 books and pamphlets: of this number, 53 books were purchased. The issues for 1926-27 were 560, and for 1927-28, 980. The average number of books on loan at any one time was 200. Fifty books were loaned to the Central Library for Students, and 10 books borrowed from that Library.

111 sets of periodicals and 92 books have been bound during the year, the actual number of volumes of periodicals bound being 343.

A Subject-Catalogue to the periodicals is kept by the Librarian and a Subject Catalogue to the books is contemplated. A printed Author-Catalogue to the books is badly needed, and would prove useful to the Central Library for Students and its associated Libraries, in addition to its use to Fellows of the Institute.

The number of books on Eastern and Central Asia and reference books is smaller than it should be in an anthropological Library. On the other hand, the Library is particularly strong in periodical literature, and it is the constant endeavour of the authorities of the Institute and their Librarian to try to complete such sets as may be imperfect. Unfortunately many of the back numbers of these periodicals are difficult of acquisition and expensive to purchase.

During the past year the Library has afforded facilities for reading, research, and information to properly introduced persons who are not Fellows of the Institute.

MEETINGS.

Fourteen Ordinary Meetings and 1 Special Meeting have been held during the year, as against 14 Ordinary Meetings in 1926. The Huxley Memorial Lecture was delivered by Dr. Aleš Hrdlička at the Rooms of the Royal Society, on November 8th, the subject of the lecture being "The Neanderthal Phase of Man."

INDIAN RESEARCH COMMITTEE.

No public meetings of the Indian Research Committee have been held during the year: but the Research sub-committees have continued their work. On the resignation of Dr. Hall from the Chairmanship, and Mr. F. J. Richards from the Secretaryship, Professor Seligman was appointed Chairman and Mr. K. de B. Codrington Secretary of the Committee.

THE EDINBURGH BRANCH.

The Edinburgh Branch continues to be active under the Chairmanship of Sir Everard im Thurn, and has provided excellent programmes during the session 1926-27. The membership, however, continues to be inadequate to meet expenses, and the Council has increased the subsidy to the finances of the branch.

DERBYSHIRE CAVES COMMITTEE

This Committee continued to carry on the work of excavation in conjunction with a Research Committee of the British Association: but no report has been presented beyond a *pro forma* statement.

HUXLEY MEMORIAL MEDAL AND RIVERS MEMORIAL MEDAL

The Huxley Memorial Medal for 1927 was awarded to Dr. Ales Hrdlička and presented to him after the delivery of his Huxley Memorial Lecture. The Rivers Memorial Medal for 1927 has been awarded to Professor Sir W. Baldwin Spencer, F.R.S., for his field-work in Central and Northern Australia.

APPEAL COMMITTEE.

Two meetings only of this Committee have been held during the year, owing very largely to delays in securing the services of a Chairman. Sir Arthur Keith has now consented to serve, and it is proposed to issue an appeal for funds for research on an extended scale as soon as the moment appears opportune. In the meantime a sum of £200 has been contributed by Dr. Hrdlička to open the fund. It is hoped that Fellows will use every effort to raise money towards this object which, if the hopes of the Committee are realized, will afford a sound financial basis for the promotion of anthropological research.

Although the plans of the Committee have not yet attained a stage of maturity which warrants a public announcement, it has been decided that, in inviting public support for anthropological research, stress should be laid on the urgent necessity of work in the field among the backward peoples before it is too late, and before their own system of culture, upon which any constructive administrative policy should be based, has been irretrievably broken down by contact with Europeans. The Committee will, therefore, regard the promotion, and publication of the results, of ethnographical and archaeological expeditions as the main object of the fund.

The Council, having in view the proposed object of this fund, has adopted an archaeological expedition to the Fayum planned by Miss Caton-Thompson in continuation of her work of excavation in previous years under the British School of Archaeology in Egypt, and has obtained from the Egyptian Government a concession under which she is now working. The main object of the expedition is to search for evidence which will serve to indicate a date for the prehistoric culture of the Fayum, and demonstrate its relation to the culture of Badari. The cost of the expedition will be £1,000. Although the Council has accepted no financial responsibility for the expedition, it has undertaken to assist Miss Caton-Thompson in raising funds. A certain amount has been received, and Dr. Rushton Parker has generously offered

to contribute 10 per cent. on any amount subscribed up to £1,000 and received before June 30th next. The Council will be glad to receive any further contributions. Subscribers will receive an allocation of any objects found and allotted to the expedition by the Egyptian Department of Antiquities.

COMMITTEE ON ETHNOGRAPHICAL OBJECTS IN PRIVATE OWNERSHIP.

Lord Onslow has continued to act as Chairman of this Committee. Particular have been received of a number of private collections, some of which have been catalogued.

INTERNATIONAL CONGRESS OF ANTHROPOLOGY.

The International Congress of Anthropology was held at Amsterdam in September last, and was attended by the President and Professor Fleure as representatives of the Institute. The President also acted as the representative of Great Britain, and representatives of several British Dependencies were also present.

Advantage was taken of the exceptionally numerous attendance of Dutch anthropologists and the presence of representatives of German anthropology, to discuss the question of international relations in anthropology and the best method of securing the greater efficiency of the Congress as a means of intercourse among the anthropologists of all nations - a matter on which the Council of the Institute has been in communication with the International Institute of Anthropology in Paris for some time. Various proposals were exhaustively discussed, both informally and in full session, and of these some are to be brought up for the consideration of the Council of the International Institute before the next Congress is held.

ROYAL COMMISSION ON MUSEUMS.

The Institute has been invited to give evidence before the Royal Commission on the National Museums. A Sub-Committee has drawn up a memorandum which, when approved by the Council, will be forwarded to the Commission. Representatives of the Institute will also be heard in evidence.

ETHNOGRAPHICAL SURVEY OF BURMA.

Representations made to the Government of Burma on the desirability of the Ethnographic Survey of that country have been so far successful that the temporary measures set on foot for collecting linguistic and ethnographic data and collating and digesting early official records are to be continued until the end of 1929 at least.

CONCLUSION.

In concluding its survey of the year's work, the Council would wish to express its conviction that while the Institute has by no means yet attained the position which is warranted by its efforts and by the importance of the science with which it deals a great field of scientific activity and public utility lies open before it at the present moment. The limit of its activities is set only by the measure of support it receives. It may, therefore, be regarded as the duty of all who are interested in anthropological studies to ensure that the Fellowship of the Institute is rapidly and substantially increased.

TREASURER'S REPORT FOR THE YEAR 1927

The accounts for the year show a slight excess of income over expenditure, but the amount is not greater than the proportion that should be set aside to meet cost of the periodic repainting of the premises, which is essential under the terms of the lease. The increases in the *Journal* and *Mon.* and the issue of occasional publications during the year, as well as some extension of the Library, have been rendered possible through the welcome grant from the Laura Spelman Rockefeller Memorial Fund. This has also enabled the continuance of the services of the Assistant Librarian, which have been invaluable for the rearrangement and cataloguing of the Library, and for bibliographical work which has added much to its usefulness to the Fellows of the Institute.

There has been a small increase in the income from current subscriptions *pari passu* with the net gain in membership, but, unfortunately, there has been a small fall in the sales of the *Journal* and of *Mon.* A number of Fellows do not take the latter publication, a point to which their attention may be drawn, as a comparatively small increase in the subscribers would go far to remove from the Council any anxiety as to the expenditure which may justly be devoted in that direction.

During the year it has proved possible to reinvest the money which had to be withdrawn at the time of the change of premises to meet the expenses incurred at that time. The investment takes the form of £800 $1\frac{1}{2}$ per cent. Conversion Loan. A further sum has been received towards the Housing Fund, but up to the present the move has still impoverished the general funds.

Thanks are due to Professor Hrdlička for a generous donation of some £200 to inaugurate a fund for the purpose of extending the purposes and influence of the Institute. This has been placed, for the present, to a separate deposit account to be drawn on as the aims of the special Appeal and Research Committee materialize. Further donations to this and other funds would be most welcome, but the greatest essential is an increase in the number of Fellows, for the larger the roll the stronger and more influential will the Institute become.

F. C. SHRUBSALL,

Hon. Treasurer.

ROYAL ANTHROPOLOGICAL INSTITUTE

ACCOUNTS FOR

PAYMENTS.	REVENUE		
	£	s	d.
RENT, HOUSEKEEPING, &c.	320	6	1
"JOURNAL"	759	2	4
"MAN"	537	10	10
SALARIES	258	10	2
ADVERTISING	11	10	0
STAMPS AND PARCELS	133	3	6
TELEPHONES AND TELEGRAMS.....	13	4	8
PRINTING, STATIONERY, ETC.	43	3	6
COAL, GAS AND LIGHT	61	2	4
LANTERN, ETC.	6	17	6
INSURANCE—			
Fire and other	24	2	7
Redemption of Lease.....	198	18	4
	<hr/>		
	223	0	11
SUBSCRIPTIONS TO OTHER SOCIETIES, DIRECTORIES, ETC.	8	5	11
BANK CHARGES AND COMMISSION	3	10	4
TYPEWRITER	3	13	6
TRAVELLING	2	10	6
AUDITORS' FEES	5	5	0
SUBSIDY TO EDINBURGH BRANCH	3	10	0
RIVERS MEDAL	2	3	6
SUBSCRIPTION TO THE LONDON ASSOCIATION FOR THE PROTECTION OF TRADE	2	2	0
SUNDRIES	17	5	3
Balance Carried Forward, 31st December, 1927	1,277	0	11

£3,692 18 9

OF GREAT BRITAIN AND IRELAND.

THE YEAR 1927.

ACCOUNT.

RECEIPTS.		£	s.	d.	£	s.	d.
BALANCE BROUGHT FORWARD, 1ST JANUARY, 1927					1,015	4	6
SUBSCRIPTIONS :—							
Current	1,206	12	0				
Arrears	23	2	0				
Advance	37	16	0				
Life	31	10	0				
				—————	1,299	0	0
ENTRANCE FEES					72	7	6
SALE OF "JOURNAL"	262	0	0				
Add Grant from Laura Spelman Rockefeller Memorial Fund							
Account	220	0	0				
				—————	482	0	0
SALE OF "MAN"	446	9	4				
Add Grant from Laura Spelman Rockefeller Memorial Fund							
Account	75	0	0				
				—————	521	9	4
SALE OF "HUXLEY LECTURE"					4	17	3
ADVERTISING					13	12	6
DIVIDENDS AND INTEREST					151	2	8
(American Dollar Bonds)					32	17	0
HIRE OF LECTURE ROOM					100	8	0

£3,692 18 9

*ACCOUNTS FOR**CAPITAL*

	£	s.	d.	£	s.	d.
DECREASE IN VALUE OF £886 BURMA RAILWAY STOCK —						
Valued 31st December, 1926, at 120	1,063	4	0			
Valued 31st December, 1927, at 117	1,036	12	5			
				26	11	7
SUBSCRIPTIONS IN ARREAR.—						
Estimated value 31st December, 1926	44	0	0			
Estimated value 31st December, 1927	20	0	0			
				24	0	0
BALANCE CARRIED FORWARD, 31ST DECEMBER, 1927				7,758	17	8
				£7,809	9	3

LIBRARY

	£	s.	d.
BALANCE, 1926	55	1	10
BOOKS AND BINDING	165	19	10
TRANSFER FROM SALARIES PAYMENTS ACCOUNT (Librarian's Salary)	250	0	0
TRANSFER FROM PETTY CASH	12	1	0
	£483	2	8

HOUSING

	£	s.	d.
BALANCE, 1926	394	0	4
	£394	0	4

LAURA SPELMAN ROCKEFELLER

	£	s.	d.
TRANSFER TO LIBRARY ACCOUNT (Librarian's Salary, £250—Binding, £25)	375	0	0
TRANSFER TO "JOURNAL"	220	0	0
TRANSFER TO "MAN"	75	0	0
TRANSFER TO MISCELLANEOUS PUBLICATIONS ACCOUNT	125	0	0
BALANCE, 1927	723	9	4
	£1,518	9	4

THE YEAR 1927—continued.

ACCOUNT.

	£	s.	d.	£	s.	d.
BALANCE BROUGHT FORWARD, 1ST JANUARY, 1927.....				7,805	14	3
INCREASE IN VALUE OF £300 METROPOLITAN CONSOLIDATED 3½% STOCK—						
Valued 31st December, 1927, at 97¼	294	15	0			
Valued 31st December, 1926, at 96	288	0	0			
				3	15	0
				27,809	9	3

ACCOUNT.

	£	s.	d.
TRANSFER FROM REFUNDS RECEIPTS ACCOUNT	1	17	0
SALE OF BOOKS	22	16	10
GRANT FROM THE LAURA SPEITMAN ROCKEFELLER MEMORIAL FUND ACCOUNT	375	0	0
BALANCE, 1927.....	83	8	10
	4483	2	8

ACCOUNT.

	£	s.	d.
DONATIONS	19	3	0
BALANCE, 1927	374	17	4
	394	0	4

MEMORIAL FUND ACCOUNT.

	£	s.	d.
BALANCE, 1926	798	2	4
GRANT FROM THE LAURA SPEITMAN ROCKEFELLER MEMORIAL FUND	720	7	0
	1518	9	4

ACCOUNTS FOR**ANTHROPOMETRIC**

	£	s.	d.
BALANCE, 1927	3	12	0
	<u>£3</u>	<u>12</u>	<u>0</u>

MISCELLANEOUS

	£	s.	d.
BALANCE, 1926	87	3	7
TRANSFER FROM SPECIAL ITEMS PAYMENTS ACCOUNT	304	13	5

£391 17 0

TRIBAL

	£	s.	d.
PAYMENT TO COLONIAL OFFICE	0	11	0
BALANCE, 1927	0	15	9
	<u>£1</u>	<u>6</u>	<u>9</u>

RESEARCH AND

	£	s.	d.
BALANCE, 1927	209	0	2

£209 0 2

SPECIAL

	£	s.	d.
BALANCE, 1927	18	3	0
	<u>£18</u>	<u>3</u>	<u>0</u>

THE YEAR 1927—continued.

INSTRUMENT ACCOUNT.

	£	s.	d.
BALANCE, 1926	3	12	0
	<hr/>		
	£3	12	0
	<hr/>		

PUBLICATIONS ACCOUNT.

	£	s.	d.
SALES	74	9	8
TRANSFER FROM REFUNDS RECEIPTS ACCOUNT	30	10	0
TRANSFER FROM THE LAURA SPEIMAN ROCKEFELLER MEMORIAL FUND ACCOUNT.....	125	0	0
BALANCE, 1927	161	17	4
	<hr/>		
	£391	17	0
	<hr/>		

MARKINGS ACCOUNT.

	£	s.	d.
BALANCE, 1926	0	13	3
SALES	0	13	6
	<hr/>		
	£1	6	9
	<hr/>		

APPEAL FUND ACCOUNT.

	£	s.	d.
SPECIAL PROVISIONAL DONATION	205	14	3
INTEREST	3	5	11
	<hr/>		
	£209	0	2
	<hr/>		

EXPEDITIONS ACCOUNT.

	£	s.	d.
DONATIONS	18	3	0
	<hr/>		
	£18	3	0
	<hr/>		

PRESIDENTIAL ADDRESS.

THE INTRODUCTION OF CIVILIZATION INTO BRITAIN.

By HAROLD J. E. PEAKE, M.A., F.S.A.

A YEAR ago I took as the subject of my address "The Beginnings of Civilization,"¹ which I defined as the passage from the dependence upon natural supplies to the production of food and other commodities. The results of my investigations went to show that such civilization arose in the Near East, more probably in Asia than in Africa, while there were indications that its source should be looked for in Syria, or in the mountainous region immediately to the north of that country. As far as we can penetrate the past in that part of the world, we find the growers of grain were potters, and not wholly unfamiliar with the art of metallurgy. The inference is that in this quarter the arts of agriculture and of pot-making arose almost simultaneously, and that these were followed, after but a short interval of time, by the use of gold and copper.

The first two arts were introduced at an early date into many of the Isles of the Ægean, almost certainly from the south-west corner of Asia Minor, and a little later into Thessaly, probably from some other part of the same country. Before 3000 B.C., it would seem, both these arts were introduced into the Danube basin, together with a knowledge of metal.² Our Fellow Professor V. Gordon Childe has suggested that those who introduced these arts into Hungary and Transylvania came thither by river and sea, probably from North Syria³ but I think it more probable that they set out on their voyage from some Asiatic port on the North Ægean. Be this as it may, we find at an early date settlements of grain-growers, using ornaments of copper, at various points above the Iron Gate, and it is significant, as Childe has pointed out, that their most important settlements were in close proximity to deposits of gold, copper and cinnabar.⁴

¹ *Journ. Roy. Anthropol. Inst.*, lvii, 1927, pp. 49-58.

² Peake, H., and Fleure, H. J., *The Crossroads of Time: Peasants and Potters*, ch. 7; *Priests and Kings*, ch. 8. (Oxford, 1927.)

³ Childe, V. Gordon. "The Danube Thoroughfare and the Beginnings of Civilization in Europe"; *Antiquity*, i, pp. 79-82; *Dawn of European Civilization*, London, 1925, p. 175; *The Aryans*, London, 1916, pp. 127-31.

⁴ Childe, V. Gordon, "The Danube Thoroughfare," etc., pp. 81, 82, and map on p. 80.

Professor Childe has shown us in his most useful volumes how these peasants spread to the north-west, handing on their culture, apparently, to some of their neighbours, who had hitherto lived in a state of epipalæolithic savagery. He has also shown how, as they left behind them the gold and copper deposits of East Hungary and Transylvania, they seem to have lost their knowledge of metal, which had been used rather for ornament than for the serious occupations of life. Thus, by the time that these peasants had reached Moravia, they were in a neolithic state of civilization. From Hungary and Moravia these peasants spread in several directions—to Switzerland, to the Oder and to the Rhine, and Childe has traced them, with their characteristic pots of spiral-meander ware, or *band-keramik*, as far as the Hesbaye in Belgium, in the neighbourhood of Liège, where their civilization, first brought to light by M. de Puydt,¹ has been termed Omalian by our Honorary Fellow Professor A. Rutot.² To-day it is possible to trace these peasants a stage farther, for Dr. J. H. Holwerda has shown me, in the Museum at Leiden, two pots of distinctively Danubian type that he has found in a neolithic settlement near Caberg, not far from Maastricht. These Danubian peasants seem to have spread where the loess provided a suitable soil for their crops, and their farther advance towards the shore of the North Sea seems to have been hindered by a stretch of sandy soil, unsuitable for cultivation, that lay between La Hesbaye and the sea. This broad belt of uncultivable land seems to have prevented the elements of civilization reaching our land by this route.

Childe has also indicated another route, this time by sea, by which civilization spread along the Mediterranean,³ and our Fellow Dr. H. Frankfort has recently given us evidence as to the port of departure, and indicated the period at which it first took place.⁴ He has shown us that a number of villages grew up at the head of the Gulf of Corinth, inhabited first by neolithic peasants from Thessaly, subsequently joined by people from the east of that country, who brought in the painted Dhimni ware, and lastly by Cycladic folk, who had earlier landed in Argolis, founded Tiryns, and then moved on to Corinth and other sites in that neighbourhood. He has shown us that a culture, containing these three elements, was carried down the Gulf of Corinth as far as the island of Levkas, and has given us good reason for believing that traders set sail thence on their way to the coast of Italy by Molfetta and Matera. Further, he has shown us that they sailed along the south Italian

¹ Puydt, Marcel de, "Fonds de cabanes néolithiques du Niva et de Bassenge," *Bull. Soc. d'Anthrop. Brux.*, 1904, Mem. iv; "Fonds de cabanes néolithiques de la Hesbaye," *ibid.*, 1906, pp. 69-81; "Le fond de cabane néolithique découvert à Liège," *C.-R. Congr. de la Fédération archéologique et historique de Belgique*, 1909.

² Rutot, A., "Notions préliminaires sur le néolithique," *Bull. Soc. d'Anthrop. Brux.*, 1905, pp. 23-6; "Esquisse d'une classification de l'époque néolithique en France et en Belgique," *Rev. Préhist.*, 1907, pp. 113-14.

³ Childe, V. Gordon, *Dawn of European Civilization*, ch. vi.

⁴ Frankfort, Dr. H., *Studies in Early Pottery in the Near East*, ii. London, 1927, pp. 126-35.

coast to Sicily, where they founded a number of settlements, the most important of which lay where Megara Hyblæa afterwards arose.

Frankfort has pointed out that these traders carried goods from Hissarlik II, which he thinks reached the Adriatic by an overland route: that they sometimes did so is clear from the discovery by our Honorary Fellow Dr. Paolo Orsi, at Castelluccio in Sicily,¹ of a curious knobbed bone object, almost an exact replica of one found by Schliemann in Hissarlik, and which Frankfort assigns to the second phase of the second city. The discovery of this knobbed bone object gives us some indication of the date, for the second phase of Hissarlik II must have come to an end approximately at the close of the Early Minoan period, which may be dated at 2200 or 2160 B.C. The presence of Dhimni ware, or of pottery influenced by that ware, on all the sites mentioned, makes it likely that this trade began some little time after the beginning of the second period in Thessaly, now usually placed about 2600 B.C. We may then date this trade as having taken place between 2400 and 2150 B.C.

There are many indications that about this time, or soon afterwards, this line of trade was continued from Sicily to the Ligurian coast of Italy, to the south of France, to the south-east of Spain, and to the south of Portugal. The slight traces of these connections have not, as yet, been well worked out: but, as Childe and Frankfort have pointed out, the presence at Nora, in Portugal, of an ivory knob,² like that found in hoard L at Hissarlik, shows us that products of Ægean culture were reaching the Atlantic coast during the third phase of Hissarlik II, while a segmented stone bead from Palmella,³ of E.M. II type, indicates that this trade had begun well before the close of the Early Minoan period. That by this means the knowledge of metal, as well as of pottery and of agriculture, was introduced into the Iberian peninsula seems to be fairly well established.

Professor P. Bosch-Gimpera has shown that at this time there were two small centres in the Iberian peninsula in which copper was worked and used, one in the south-east of Spain, at and near El Argar, which may be termed the Almerian culture, and another in South Portugal, where copper ores also occur, which we may call the Lusitanian culture.⁴ Bosch-Gimpera is inclined to see in these two cultures the independent rise of civilization among the epipalæolithic Capsians, but in the light of the evidence already cited it seems more likely that we have at these two spots centres of civilization introduced from the Ægean region by the routes we have traced, but developed on their own regional lines by the Capsian inhabitants of the district.

¹ Orsi, P., "La necropoli sicula de Castelluccio," *Bull. Polito. Ital.*, 1892, p. 7.

² Childe, V. Gordon, *Dawn, etc.*, p. 119, fig. 28 (3); Frankfort, H., *op. cit.*, p. 135.

³ Childe, V. Gordon, *op. cit.*, p. 119.

⁴ Bosch-Gimpera, P., "La migration des types Hispaniques, &c.," *Rev. Arch.*, xxii, 1925, pp. 191-209.

Between these two culture-zones, the Almerian and the Lusitanian, both very small during Early Minoan times, we find a civilization developing, which Bosch-Gimpera calls the cave civilization (*civilisation des grottes*). Most of the elements of this civilization are, as he has shown, clearly of Capstan origin. The people were ignorant of metal, or, at least, possessed no such tools or weapons. It is uncertain whether they grew grain, though, as we shall see later, it seems probable that they were not wholly ignorant of the art of agriculture: and they made rough pottery, based on leather models, decorated chiefly by attaching a band of clay around their pots a few inches below the rim, and making finger-tip impressions in this band. This culture extended over nearly the whole of the Iberian peninsula, from the south-west near Seville to the north-west of Catalonia, and spread thence over the south of France from the eastern Pyrenees to the slopes of the Maritime Alps. Whether it extended farther north, up the valleys of the Rhone and the Saone, is not clear from any published evidence: but, as we shall see later, there are other wares found to the north and north-east, which may well be derived from this finger-tip ware, which Bosch-Gimpera has called *céramique-ornée*.¹

A further advance of trade, or, perhaps, a spread of population, seems to have followed closely upon the introduction of civilization to the Atlantic sea-board. The main evidence for this rests upon the distribution of dolmens, a very controversial subject. Mr. E. Thurlow Leeds² has contended that the dolmens arose in Portugal, as substitutes for cave burial-places, and that thence this form of tomb spread in every direction. While it is permissible to disagree with this view as to the origin of the dolmen, and to doubt whether all such structures were derived from the Portuguese models, there seems little doubt that the dolmens found in Brittany, Guernsey, and Denmark are so derived, since pottery, showing marked affinities to the dolmen wares of Portugal, has been found in the megalithic tombs in these regions.³ There is also good reason for supposing that the dolmens of Ireland and the west of Britain are due to a like origin. On the other hand, the tombs of similar type found north of the Caucasus and in the Crimea may well have had another origin.

The last statement may seem to support the idea of independent invention, but I do not wish to be understood to advocate that view in this case. I have recently become convinced that there is much to be said for a view that I put forward tentatively in 1916,⁴ that the dolmen arose from the cist found in very early times in the Cyclades. The dolmens of Portugal, however, have elements in common

¹ Bosch-Gimpera, P., and Serra-Rafels, J. de C., "Études sur le néolithique et l'énéolithique en France," *Rev. Anthropol.*, 1925, pp. 341-64.

² Leeds, E. Thurlow, "The Dolmens and Megalithic Tombs of Spain and Portugal," *Archæol.*, 1929, pp. 291-32.

³ Childe, V. Gordon, *Dolmens, etc.*, p. 274.

⁴ *Mon.*, xvi, p. 68.

with the *tholoi* of the Mesara plain and other parts of Crete, derived, as Sir Arthur Evans has suggested, from the early Libyan house.¹ Forms intermediate between these *tholoi* and the Cycladic cist were found by Mr. Seager at Mochlos² and I am suggesting that this type of grave, used for multiple burials, was carried westward by the traders of whom I have spoken, and developed into rock-cut tombs in Sicily,³ into the *Sesi* of Pantellaria,⁴ the *naraghe* of Sardinia,⁵ and into the cupola-tombs and dolmens found in Spain and Portugal.⁶

About the same time, Cycladic traders introduced their form of cist burial into the Donetz region of South Russia,⁷ and from these developed the larger cists, of wood or of rough stone, which have been met with in the Kuban valley and in the Caucasus. Thus, I would suggest, very similar structures arose in two regions in imitation of a common prototype. Whether in Portugal the dolmen is the predecessor of the cupola-tomb, as has been assumed on typological grounds by most writers, is open to question, as Childe has pointed out.⁸ Since the cupola-tombs are found nearer to the sea, by which the new-comers had arrived, and the dolmens are farther inland, it is possible that these cupola-tombs were introduced into the peninsula in imitation of the Cretan *tholoi*, while the dolmens are simple imitations of these by the poor and more primitive inhabitants of the interior.

Be this as it may, the custom of burying the dead in dolmens, the potter's art, the elements of agriculture, and, perhaps, a limited knowledge of copper, seem to have been carried from Portugal to Brittany, and thence to Denmark: a branch line led from Brittany to Guernsey, and apparently to Ireland and the west of Britain. That the similarity of design, used in Portugal and Ireland about this time, denotes a connection between these two countries has been made clear to us by our Honorary Fellow M. Salomon Reinach.⁹

Though elements of culture reached Ireland and the west of Britain in this way, we have no evidence that this trade touched the greater part of England. In fact, cultural connections, other than dolmens, are almost absent in the west of England and in Wales, and are far from clear in Ireland, though pottery of the Portuguese megalithic type has been found by our Fellow Professor T. H. Bryce in the megalithic tombs that he opened in the Isle of Arran.¹⁰ Britain was, for the most part, if not

¹ Evans, Sir Arthur, "The Early Nilotic, Libyan and Egyptian Relations with Minoan Crete," *Journal, Roy. Anthropol. Inst.*, lv, pp. 222-4.

² Seager, R. B., *Excavations in the Island of Mochlos*, Boston, 1912.

³ Petrie, T. E., *The Stone and Bronze Ages in Italy*, Oxford, 1909, fig. 219, p. 436.

⁴ *Ibid.*, fig. 86, p. 224.

⁵ *Ibid.*, fig. 87, p. 227.

⁶ Aberg, Nils, *La civilisation pré-historique de la péninsule Ibérique*, Halle, 1921, pp. 15-27.

⁷ Childe, V. Gordon, *Dawn, etc.*, pp. 143-4.

⁸ Childe, V. Gordon, *op. cit.*, p. 112.

⁹ Reinach, S., "The Evora Grotto," *The Antiqu. Journal*, v, 1925, pp. 123-34.

¹⁰ Bryce, T. H., "On the Cairns of Arran," *Proc. Soc. Antiqu. Scot.*, xxxvi, 1906, pp. 74-181.

entirely, neglected by these influences, for the dolmens of Wales and the west may be only relatively late introductions from Ireland.

We must now turn to the evidence from our own land, and especially from England. It has long been taken for granted that civilization, as I have defined it, reached the British Isles with the dawn of the Neolithic Age, and, as we shall see, this belief is now amply justified. Our evidence for this age is, however, derived very largely from isolated finds of flint implements, some highly finished, such as polished flint celts and finely chipped knives or daggers, most of which have been found without associations, and which, in the aggregate, weigh a great many tons. In addition to these, we have a number of long barrows, some of which have yielded pottery, mostly in a fragmentary condition, and a few isolated pots, again usually without associations. Dwelling sites of this period have rarely been met with, and of such as have been explored, most have been found in a very imperfect condition. Only two really typical settlements have been met with as yet. One of these was discovered in 1908 and 1909, by Mr. and Mrs. Cunningham, at Knap Hill overlooking the Vale of Pewsey.¹ The other, at Windmill Hill near Avebury, is being explored most thoroughly by our Fellows Mr. and Mrs. Alexander Keiller, and the results of this work cannot well be published until the excavations have been completed. Our knowledge, therefore, of the Neolithic Age in Britain is necessarily very limited.

The polished-stone celts of Britain, though collected in vast numbers, have not yet received the detailed study that they deserve, and much investigation is required before we can place them with precision in their true chronological order or determine the various regional types. Some years ago Dr. Aberg made a study of the flint celts of Northern and Western Europe,² and his view was that the types found in Britain were similar to those of north-east France and Belgium, and that in form they were derived from the unpolished Campignian pick. That the shape of the early polished celt of this area was derived from an epipalæolithic predecessor is likely enough, but it seems impossible that the whole complex of British Neolithic civilization, including the arts of pot-making and agriculture, arose independently in a country so far removed from the regions in which edible grains grow wild. It is important for our purpose, however, that the type of polished-stone celt is found distributed over north-east France and Belgium, the area in which has been found a civilization, sometimes called Campignian, and by Bosch-Gimpera *le civilisation du silur*.³

The use of the term Campignian is somewhat unfortunate. It has been used to describe a certain type of unpolished celt or pick, to denote a certain culture with

¹ Cunningham, Mrs. M. E., "Knap Hill Camp," *Wilt's Arch. Mag.*, xxxvii, 1911, pp. 42-65.

² Aberg, Nils, *Studier öfver den Yngre Stenåldern i Norden och Väst Europa*, Norrköping, 1912.

³ Bosch-Gimpera, P., and Serra-Rafol, J. de C., "Études sur le néolithique et l'énéolithique en France," *Rev. Anthropol.*, 1925, p. 361; 1926, pp. 320-6; *Reallexicon der Vorgeschichte*, Bd. IV, 1926, Frankreich, B. Neolithium

an ill-defined area, and to mark a period when the Campignian pick was used but the polished celt was unknown. The name is, of course, derived from the famous site of Campigny, near Blangy-sur-Bresle, Seine-Inférieure, excavated in 1872 by M. Eugene de Morgan.¹ Here the Campignian pick was found in abundance, but it turns out now, as Professor Childe has shown,² that there were found also polished celts and other cultural elements usually associated with them. If we continue to use the term Campignian as a name for a period, we must admit that the type site cannot be included in it, and it has been shown that the Campignian pick persisted until the Iron Age.³ I would suggest, therefore, as Déchelette did in 1908,⁴ that it is time that the term were abandoned, except, perhaps, as a description of the particular type of unpolished celt or pick.

A more hopeful line of enquiry is the pottery. For long the archaeologists of Western Europe have been reproached by their colleagues of Central Europe for their neglect of the study of Neolithic and Bronze Age pottery. This is not wholly justified, but it must be admitted that we know less of the Neolithic wares of Britain and France than we do of the contemporary pottery from the east of the Rhine. This is due to several causes. The pottery of Central Europe is derived from wares introduced into south-east Europe by civilized peasants, some of whom had some slight knowledge of metallurgy, and, although these peasants absorbed many of their epipaleolithic neighbours, the latter seem fully to have adopted their civilization. Thus a fine tradition of pot-making survived east of the Rhine, and the pottery from the Neolithic sites there is abundant, of distinctive forms and with characteristic decoration.

In Western Europe, as we have seen, a few small settlements of traders arose, such as those at El Argar and in the south of Portugal, and from these settlers the epipaleolithic folk of the hinterland learned the potter's art. These folk had no traditions of this kind, and made rough pots, often very badly baked, in imitation of leather bags, usually of very ill-defined form, and either devoid of decoration or with the most primitive ornament. Pottery is, therefore, much scarcer in these western lands: complete pots, or such as can be reconstructed, are very rarely met with, while the lack of distinctive form or decoration makes the study of such remains as have been found both unsatisfactory and uninteresting. It is possible, too, that the damper climate of the west may have been a contributory cause leading to these results.

¹ Morgan, Jacques de, *Préhistoire Man*, London, 1924, p. 77: Morgan, E. and H. de, *Notice sur le Campigny*, Amiens, 1872.

² Childe, V. Gordon, *Dawn, etc.*, p. 18.

³ *Man*, xxv, p. 83. Our Fellow Mr. A. Leslie Armstrong informs me that he found one, associated with Early Iron Age pottery, at Grime's Graves in the "Black Hole," described in *Proc. Prehist. Soc. E. Angl.*, v, p. 107.

⁴ Déchelette, Joseph, *Manuel d'archéologie*, i, Paris, 1908, pp. 327-9.

Another cause has, perhaps, led to the neglect of this study among our French colleagues, though we must not forget the admirable work done in this field by our late Honorary Fellow M. Emile Cartailhac,¹ the late M. Joseph Déchelette² and M. du Chatellier in Brittany.³ The wealth of evidence dating from the Palæolithic Age, especially from the Upper Palæolithic, has been so extensive in France, and of such superb quality, that its study has fully occupied the attention of most of their prehistoric archæologists, so that little time has been left for the study of the less important, or, at any rate, less interesting, remains of the Neolithic Age. The need for this study is now being recognized by our French colleagues, and at the recent Congress of the Institut International d'Anthropologie, Professor L. Capitan drew attention to the need for this inquiry in a paper entitled "L'extension de la céramique néolithique en Europe, en Asie et en Amérique."

The neolithic pottery found in Britain was first seriously discussed in 1910 by Mr. Reginald Smith, in commenting upon some pottery found by Mr. G. Wyman Abbott in some pit-dwellings near Peterborough.⁴ He then pointed out that certain round-bottomed bowls, of which that found at Mortlake a few years previously is the best known example, were to some extent contemporary with the beakers, which are known to have lasted into the Bronze Age. He drew attention to the fact that similar bowls had occurred in Finland and the east of Sweden. In this paper Smith gave a very full summary of the neolithic pottery known at that date from British sites, and mentioned incidentally some fragments found by Mr. J. R. Mortimer in a subterranean dwelling under one end of a long barrow at Hanging Grimston in the East Riding of Yorkshire, though he did not emphasize the fact that this was a very different type of ware from the Mortlake bowl.

It was our Fellow Mr. T. D. Kendrick who first clearly pointed out that apart from beakers, we had two distinct neolithic wares in England.⁵ According to him, one type has "a dark and imperfectly fired paste, showing a large amount of white grit and crushed shell which is present in big particles," while the other "shows a slight improvement in potting, as it is a little harder, but it is still of a very gritty paste, and has usually been taken from the kiln with a black core." The majority of the pieces of this second ware "are heavily decorated with impressions of twisted thongs, finger-tip pits and ridges and ragged finger-nail scratches." The first of these wares, Kendrick says, has been found at Windmill Tump, Rodmarton in Gloucestershire, Tinhead and Lanhill barrows and from the barrow at North Bavant in Wiltshire,

¹ Cartailhac, E., *France Préhistorique*, etc., Paris, 1889.

² Déchelette, Joseph, *op. cit.*

³ Du Chatellier, *Les époques préhistoriques et gauloises dans le Finistère*, 2nd ed., Rennes and Quimper, 1907; *La poterie aux époques préhistorique et gauloise*, Armonique, Rennes and Paris, 1897.

⁴ Smith, Reginald A., "The Development of Neolithic Pottery," *Arch.* lxxii, 1910, pp. 340-52.

⁵ Kendrick, T. D., *The Age of Man*, London, 1925, ch. ii.

as well as from beneath a long barrow on Wexcombe Down in the same county. This seems to be the same ware as that found by Mortimer at Hanging Grimston. The second ware was found in the long barrow at West Kennett in Wiltshire, in Pole's Wood South Barrow and Windmill Tump, Rodmarton in Gloucestershire. To these last must be added the Mortlake bowl, many of the sherds from Peterborough, and a number of others. About the same time, Professor Oswald Menghin, in his edition of Hoernes' great work,¹ also referred to these two classes of pottery, which he called, respectively, *Grimston-keramik* and *Peterborough-keramik*. He suggested that the former was somewhat earlier than the latter.

Quite recently Mr. Leeds has reported very fully upon a neolithic dwelling site that he has found near Abingdon², in this occur a plentiful supply of the first ware and one worn sherd of the second. He has taken the opportunity to discuss the whole question of the neolithic pottery of the British Isles. He criticizes Menghin's use of the term *Grimston-keramik*, on the whole justly, since this site is the most northerly of a series, the great majority of which lie in the south of England; he suggests the substitution of the term Windmill Hill pottery. Whether or no this is altogether a suitable term I shall discuss later. Leeds gives a map, on which are shown all the sites at which either of these wares have been met with, and from their distribution he argues that the first ware came into Britain from the south and the second from the north-east. It is doubtful, to my mind, whether this is a just inference from the distribution of sites already noted, still more whether, since we are evidently at the beginning of the inquiry, it is safe to draw any deductions from a distribution-map of this kind, since the sites known are probably far fewer in number than those that may be discovered later. On the other hand, Leeds gives other evidence which makes it likely that his inference is correct, though the method by which it has been reached seems to be dubious. Lastly, he criticizes Menghin for placing the two wares in different periods, and suggests that both are contemporary with one another and with the early beakers.

I have already referred to the important site at Windmill Hill, near Avebury, which is being so thoroughly explored by our Fellows Mr. and Mrs. Alexander Keiller. This site was first discovered by the Rev. H. G. O. Kendall, who found the hill covered with a great number of flint implements and wasters.³ Later on he noted signs of a ditch, and, digging a trial pit, he ascertained that his suspicions were correct; in this pit he found several fragments of pottery. On hearing of this, Mr. Keiller purchased the site, and for several years he and Mrs. Keiller have been carrying

¹ Hoernes, Moritz, *Urgeschichte der Menschheit in Europa, von den Anfängen bis zu 500 vor Christi*. Dritte Auflage, durchgesehen und ergänzt von Oswald Menghin. Wien, 1925.

² Leeds, E. Furdow, "A Neolithic Site at Abingdon," *Bull. Antiq. Journ.*, vii, 1927, pp. 438-62.

³ Kendall, H. G. O., "Windmill Hill, Avebury, and Grime's Graves," *Proc. Prehist. Soc. E. Angl.*, ii, pp. 239-9, 563-75; in, pp. 194-8, 192-9.

out most carefully planned excavations. They have allowed me to examine all the remains that they have found, and have given me all the information that I desired : further than this, with characteristic generosity, they have allowed me to make public all the details that I have needed for my present argument.

The settlement at Windmill Hill is defended by three concentric ditches, placed at a considerable distance apart, and within some, at any rate, of these ditches were rows of posts, the holes for which have been brought to light. The ditches are of varying depths, but, since the outer ditch reaches, in some places, the depth of 9 ft. 6 in., there has been ample opportunity to observe the stratification. One curious feature of the ditches is that they are intermittent, and that at intervals a number of wide unexcavated gangways have been left for entrances. The same feature was noted by Mrs. Cunnington in the ditch around the earlier settlement at Knap Hill, overlooking the Vale of Pewsey in Wiltshire.¹

In the lowest layer in all the ditches were found fragments of a rough, badly baked ware, of a yellowish-brown colour on the outside and black inside, the paste of which contains fragments of grit and broken shell. This ware, with slight variations, was found throughout the lower layers, up to within 5 ft. of the surface of the outer ditch : some of the fragments are greyish, and have lugs with vertical perforations. In the inner ditch, which is shallower, this layer reaches to 3 ft. below the surface. Above these layers comes a sterile layer, 1 ft. in thickness, in the outer ditch : this is absent in the inner ditch. In this sterile layer were found a very few small fragments of the wares found in the upper layers, including a small fragment of a beaker. Mr. Keiller believes that these small sherds have sunk downwards from above.

In the upper layers of all the ditches were found a number of wares, of which the more important are a large number of beaker fragments, mostly in the top $2\frac{1}{2}$ ft., many fragments resembling those from West Kennett, and a large number of sherds of a plain ware containing a great quantity of grit. It is difficult without comparing the specimens to be certain whether the yellow-brown ware from the bottom layer, which I will call the bottom ware, or this gritty ware found in the upper layers most nearly resembles the *Grimston-keramik* of Menghin, but I suspect that the gritty ware is but a more modern representative of the bottom ware. In any case, since all the neolithic wares, including beakers, and some wares not yet described, have been found at Windmill Hill, it seems doubtful whether the site is one that should give its name to Menghin's *Grimston-keramik*.

It is clear that at Windmill Hill we have pottery of two periods, separated by an interval when the settlement was uninhabited. During the first period we have the bottom ware, with a few variants towards its close. In the second, we have gritty ware throughout ; in the lower $1\frac{1}{2}$ -ft. fragments of various wares as yet

¹ Cunnington, Mrs. M. E., *op. cit.*

undescribed, and in the top 2½-ft. fragments resembling those from West Kennett, the *Peterborough-keramik* of Menghin, as well as beaker fragments: these two last appear to be absolutely contemporary. Right at the bottom of the outer ditch were found a number of saddle querns, so that we can be sure that agriculture was practised from the very beginning, as we had been led to suppose from the statement recently published by Mr. E. Cecil Curwen, on the authority of Mr. J. Graham Callander, that grain had been found "in a definitely neolithic site at Rothsay."¹

To solve the problem of how civilization first reached Britain, we must endeavour to trace the origin of the bottom ware and of the form of the Windmill Hill settlement.

Settlements defended by palisades and concentric ditches, placed some distance apart, and with gaps left for entrances, are characteristic of the Michelsberg culture of the Upper Rhine, and ditches like those found at Windmill Hill have been found at Urmitz, Mayen, and elsewhere.² The distribution of this culture extends from the Rhine to the frontiers of Bavaria, and from the northern edge of Switzerland to the Eifel mountains. Its eastern boundary is clear cut, but it is not known how far it extended to the west. Everything goes to show that it penetrated the Upper Rhine basin from the west. Its characteristic pot-form is the tulip-shaped vase, which has been found as far north as Boitsfort-Etang in Belgium,³ but this form does not occur at Windmill Hill. While, therefore, we may suspect that there is some indirect connection between the settlement at Windmill Hill and those of the Michelsberg culture, the absence of the characteristic pot-form seems to indicate that it was not from the Upper Rhine that this civilization reached Britain.

Several pots from Windmill Hill have been very cleverly reconstructed by Mrs. Keiller: some are hemispherical bowls, one with a pair of short lugs, while the largest is a bag-shaped pot bearing two lugs with vertical perforations. The forms of these vessels are crude, but they bear a general resemblance to several of the pots found in various sites in Switzerland, which Dr. Hans Reinerth has termed *Westische Keramik*.⁴ The forms of this pottery, and its distribution in Switzerland, suggest that this ware entered that country from the direction of Geneva, and that the forms are, perhaps, ancestral to those of some of the Michelsberg pots.

Unfortunately, little is known of the neolithic pottery of eastern France, although it has been recovered from about seven sites. The best known of these is that at the Camp de Chassey, but no full account of the excavations on this site have appeared, and our knowledge of its wares is mainly obtained from the descriptions and illustrations given by Déchelette.⁵ Although he figures a number of vases and fragments,

¹ Curwen, E. Cecil. "Prehistoric Agriculture in Britain." *Antiquity*, i, 1927, p. 263.

² Lehner, Hans. "Festungsbau der jüngeren Steinzeit." *Prähist. Zeitschr.*, ii, 1910, pp. 1-23.

³ Loc. le Baron, and Rahir, E. "Ottenbourg et Boitsfort." *Bull. Soc. d'Anthrop. Brux.*, xxxix, 1924, pp. 142-66.

⁴ Reinerth, Hans, *Die jüngere Steinzeit der Schweiz*, Augsburg, 1926, pp. 138-43, Fundkarte 1.

⁵ Déchelette, Joseph, *op. cit.*, pp. 554-63, figs. 202, 203, 204, 207 and 208.

these are insufficient to enable us to appreciate the industry as a whole. It is clear, however, that many wares of different types were found on that site, indicating a mixture of cultures, while the presence of carinated bowls, resembling those found in the Portuguese dolmens, suggests that the date of the site is somewhat later than the first period at Windmill Hill. Few of the remains from other sites in that part of France have been illustrated. It is the same with the flint culture of north-eastern France. The pottery found on these sites is very fragmentary, and, beyond the fact that it is devoid of ornament, we can gather very little information about it from published accounts.

It seems clear, however, that the *Westische Keramik* of Switzerland must have come from the west, and ultimately from the Lower Rhone valley, if we judge by the pebble-like stone axe-heads found with it in Switzerland and also on some of the Michelsberg sites. This type of pottery is not altogether unlike the ware that I described earlier as stretching from the Pyrenees to the Alpes-Maritimes, but lacks the distinctive band with the finger-tip impression. It seems possible, however, that this *Westische Keramik* developed from its southern neighbour in the region near the junction of the Saône with the Rhone. The resemblances between this ware and the bottom ware at Windmill Hill suggest that to the same series we must relegate the pottery of the flint culture of north-east France, a culture which spread into Belgium, for at Ottenbourg, in the latter country, M. Rahir has found a settlement with pottery, which he describes as "morceaux de vases en terre grossière remplie de fragments pierreux, façonnés à la main sans le secours du tour et cuits à l'air libre. Aucun de ces tessons, dont la couleur extérieure est rougeâtre ou brunâtre, ne présente d'ornement. . . ." He mentions also a "mamelon percé d'un trou horizontal pour permettre de suspendre le vase."¹ This description suggests a resemblance to the bottom ware at Windmill Hill.

If on further inquiry it turns out that these suggestions can be sustained, we can see how civilization can have reached England. Traders, carrying goods from Hisarlik and the Aegean, set out from the head of the Gulf of Corinth before the close of Early Minoan times, and reached south-east Sicily. Thence they, or other traders, carried goods and the elements of civilization to many of the islands and coastal lands of the western Mediterranean, including the Almerian region of south-east Spain, and the coast of the southern half of Portugal. From these two centres of trade the arts of agriculture and pot-making filtered through to the epipalaeolithic Capsians of the hinterland, who then made rough pots in imitation of the leather vessels they had hitherto used, and carried the knowledge of these arts across Spain and the South of France to the slopes of the Alps. I am suggesting that other hunting folk, living higher up the Rhone valley, then learned from them these arts, carried them to Switzerland, Burgundy, and by degrees towards the north. I would suggest, too, though in this I differ from many of the archaeologists

¹ Loc. cit. Le Baron, and Rahir, E., *op. cit.*, p. 149.

of Central Europe, that these are the folk who defended their villages with palisades and triple ditches, and were the predecessors of the Michelsberg people, and that these people then carried the elements of civilization and the fortified villages to the epipaleolithic folk of north-east France, who were using the unpolished Campignian picks derived apparently from the people of the Danish shell-mounds. From here these arts, as I believe, spread to England, being the first stage of true civilization to reach our shores.

After an interval there arrived other folk on our north-east shores: these came from the Baltic, bringing round-bottomed bowls of the Mortlake type and pottery of the West Kennett type, the *Peterborough-keraamik* of Menghin. These seem to have introduced into this country the custom of burying their dead in long barrows. A little later still came the Beaker-folk from Holland, landing in the south-east of England, accompanied, perhaps, by some of the megalith-builders from the province of Drenthe, who were responsible for Coldrum and Kist Coty House. The Long Barrow people and the Beaker-folk seem to have reached Wiltshire about the same time, and to have settled down together on sites formerly occupied by the earlier peasants. To judge by the admixture of pottery, we must suppose that all three peoples had intermixed, or were living peaceably side by side, in the settlement at Windmill Hill. At the same time, other influences, carrying the custom of erecting dolmens, were arriving in Ireland and perhaps in Wales.

In this address I have endeavoured to examine the present position of our knowledge of the earliest civilization in the west of Europe, and I have put forward, very tentatively, a suggestion as to how the arts of agriculture and pot-making may have reached this country from those centres in Spain and Portugal, at which the elements of civilization arrived by sea from the Near East. Many of the links in my chain of argument are inferential, and I am quite conscious that, until these have been filled in by ascertained facts, the thesis must remain hypothetical.

Before the hypothesis can be proved, we need to find other sites of the Windmill Hill type, nearer to the coast, that we may ascertain in what region these bearers of civilization landed. We need, too, more illustrations of the pottery already found, published with the thoroughness and careful attention to detail so conspicuously displayed in the account of the West Kennett pottery recently produced by Mrs. Cunnington.¹ We need, too, in conjunction with our French colleagues, to make a more thorough survey of the sites and pottery of the neolithic civilization of the flint culture in the north-east of France, and of the earliest of such sites in Burgundy. When this has been done we shall be able to judge how far my suggestions are correct, and perhaps to trace the exact course by which civilization spread from Spain to Britain.

¹ Cunnington, Mrs. M. E., *The Pottery from the Long Barrow at West Kennett, Wilts* (privately printed), 1927.

EXCAVATION OF A MOUSTERIAN ROCK-SHELTER AT DEVIL'S TOWER, GIBRALTAR.

[WITH PLATES I-VII AND MAP.]

By DOROTHY A. E. GARROD, L. H. DUDLEY BUXTON, G. ELLIOT SMITH,
AND DOROTHEA M. A. BATE.

Appendices by R. C. SPILLER, M. A. C. HINTON, AND PAUL FISCHER.

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FOREWORD.

THE excavation of the Devil's Tower cave, Gibraltar, was carried out in three seasons : November, 1925-January, 1926 : April-June, 1926 : and October-December, 1926.

I have to express my very hearty thanks to His Excellency General Sir Charles Monro, Bart., G.C.B., G.C.M.G., G.C.S.I., late Governor and Commander-in-Chief of Gibraltar, for permission to excavate : and to the following officials, for their kind interest and assistance, and for the loan of material without which the excavation could not have been carried out :—His Excellency Sir Charles Orr, K.C.M.G., Governor and Commander-in-Chief of the Bahama Islands, late Colonial Secretary, Gibraltar : J. R. Crook, Esq., O.B.E., late Director of Public Works, Gibraltar : Brigadier-General R. P. T. Hawksley, C.M.G., D.S.O., late Chief Engineer, Gibraltar : Lieutenant-Colonel C. F. B. Goldney, C.M.G., D.S.O., Chief Engineer, Gibraltar.

Miss Marjorie Russell kindly acted as my assistant during the first two months, and her collaboration was most valuable in the difficult early stages of the work. Professor Sollas, Abbé Breuil, and Mr. Henry Field paid short visits to the Rock in May, 1926, and took part in the work. Mrs. Harry Milton and Major Hart (1st Battalion, The Buffs) were present at the discovery of a part of the human remains and assisted in their removal. Mrs. Milton also helped me by making a very careful collection of material from the raised beach.

Finally, I must thank the discoverer of the site, Abbé Henri Breuil, at whose suggestion the work was undertaken.—D. A. E. G.

CHAPTER I.—ARCHÆOLOGY AND GEOLOGY.

(Pls. I and II.)

By DOROTHY A. E. GARROD.

§ 1.

THE Rock of Gibraltar is too well known for a detailed account of it to be necessary, but for the sake of completeness I reproduce here the brief and excellent "Physical Description" of Ramsay and Geikie (1):—

"The Rock of Gibraltar, as everyone knows, forms a well-marked promontory that trends in a direction south by west into the Mediterranean. The extreme length of the Rock, measured from the base of the cliff at the North Front to Europa Point, is only a little over $2\frac{1}{2}$ miles, and the promontory tapers somewhat gradually away from a breadth of 1,550 yards between Gibraltar and Catalan Bay to a width of 550 yards at Europa. The Rock shoots abruptly upward from the low, flat ground at the North Front in a fine mural precipice, the basal portion of which is partly concealed by a sloping curtain of debris and breccia. This precipitous wall culminates in a height of 1,349 feet at the Rock-Gun, from which point the dividing ridge or backbone of the promontory extends southward in a sharp jagged *arête*, the dominant points of which are Middle Hill (1,195 feet), Signal Station (1,294 feet), heights above Monkey's Alameda (1,396 feet), and O'Hara's Tower (1,370 feet). At the latter the ridge is abruptly truncated, and succeeded to the south by the well-marked plateaux of Windmill Hill and Europa. From the Rock-Gun to O'Hara's Tower the dividing ridge presents to the east a bold escarpment, which is for the most part inaccessible, and in places almost vertical, the cliffs where they are lowest having a drop of not less than 300 or 400 feet, and of more than 1,000 feet where they approach the sea on the north. From their base the ground falls rapidly away to the coast-line at angles that vary from 30° to 40° . The opposite slopes of the dividing ridge are not so abrupt, the only really precipitous portion that faces the west being the line of cliff that overlooks Gardiner's Road and Engineer's Road, between the Moorish Wall and the Mount. A low sandy plain, that does not average more than 10 feet in height above the sea, connects the Rock with the mainland."

The Rock is made up of Jurassic limestone, overlain on the western side by a series of shales. The limestone is riddled with caves and fissures, many of which are filled with a red bone-breccia containing a Pleistocene fauna of which the most typical species is *Rhinoceros merckii*. The following is a brief historical account of the exploration of these caves and fissures:—

The earliest known reference occurs in *Phil. Trans. Roy. Soc.*, 1770 (2). Dr. William Hunter communicates a letter from John Boddington, Esq., describing some bones, not specified, found in a breccia at Gibraltar, the exact spot where they

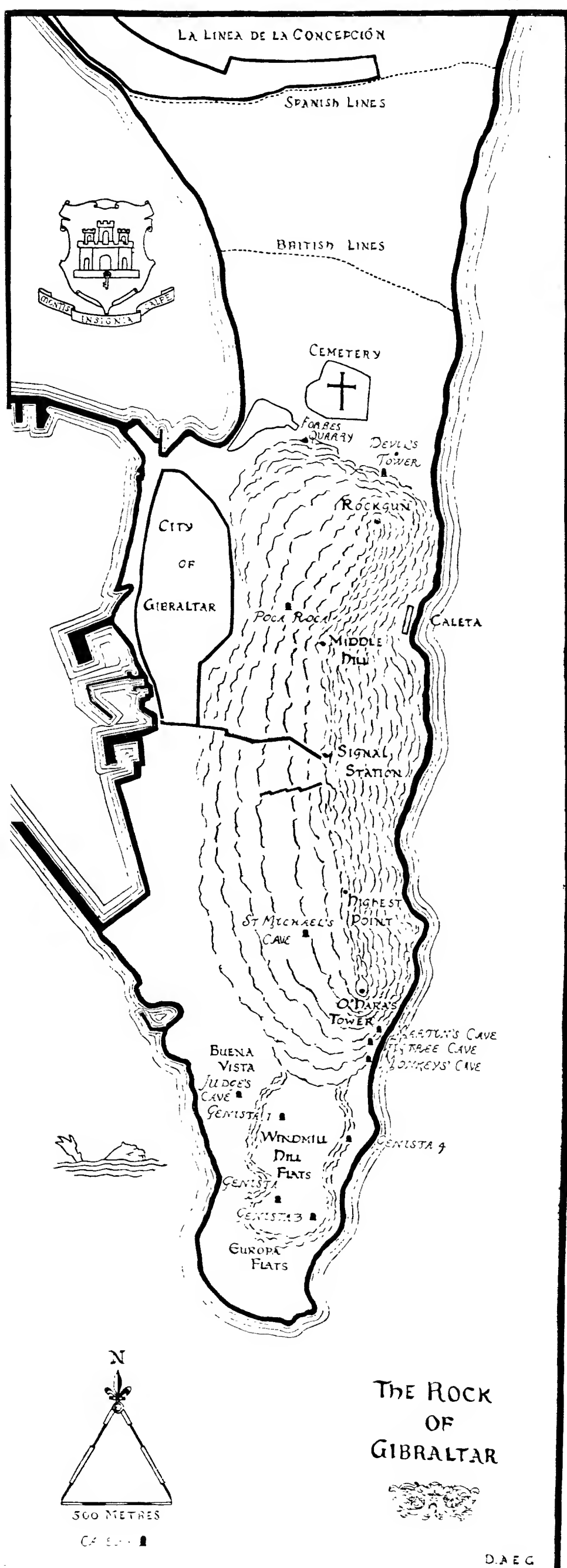


FIG. 1.

were found not being indicated. Dr. Hunter merely notes that they are not human.

In 1798, Major Imrie (3) described the fissures containing bone-breccia at Gibraltar in a paper communicated to the Royal Society of Edinburgh. His chief object was to explode the idea that the bones were found embedded in the Rock itself.

In 1823, Cuvier (4), in his great work *Les Ossements Fossiles*, describes a small collection of bones brought to him from Gibraltar by M. Chevallier, librarian at the Panthéon. He identifies some teeth and other bones of a ruminant, and in describing a drawing of two rodent jaws from the collection of M. Adrien Camper, he suggests that they belong to a hare or rabbit of a hitherto unknown species.

In 1848 a human skull of very primitive type was discovered, in conditions which are not described, in Forbes' Quarry, on the North Front. In the same year Lieutenant Flint, Secretary to the Gibraltar Scientific Society, presented the skull at a meeting of the Society. It attracted no further attention until it was sent home by Captain Brome in 1863 or 1864, and described by Professor Busk (11) at the meeting of the British Association in 1864. Busk noted its resemblance to the Neanderthal cranium discovered in 1857, and Dr. Falconer proposed for it the name of *Homo var. Calpicus* (5). The extremely primitive character of the Forbes' Quarry skull was recognized by Broca (6), who expressed the opinion that it belonged to a period before the age of "polished stone." It was not, however, until the beginning of the present century that its position in the Neanderthal race was fully recognized, thanks to the work of Sera (7), Sollas (8), and Boule (9).

From 1863 to 1868 systematic excavations were carried out, for the first time at Gibraltar, by Captain Frederick Brome, Governor of the Military Prison. Captain Brome turned the labour of military prisoners to good account by employing them in the exploration of the following caves (Fig. 1):—Genista Caves, 1-4, all in the Windmill Hill Plateau: Martin's and Figtree Caves, in the eastern face of the Rock: St. Michael's Cave and Poca Roca, high up on the western face. In all these was found a loose deposit consisting either of cave-earth or sand, containing archæological remains, and in many cases human skeletons, the most ancient of which appear to be Neolithic. Genista 1, which consists of a series of descending fissures, alone contained a Pleistocene bone-breccia, and it is interesting to note that in this breccia a "flint knife," "numerous large pieces of flint," and a "human milk-tooth" (12) were found associated with *Rhinoceros merckii*. The importance of this discovery was overlooked at the time, but, as Abbé Breuil (10) has pointed out, there can now be no doubt that Genista 1 was a Palæolithic site. Unfortunately the implements and the tooth are lost, so that it is impossible to say for certain to what stage of the Palæolithic they belonged, but the associated fauna suggests that they were Mousterian. The cave, which was entered from the surface of the plateau, within the precincts of the Military Prison, is now completely inaccessible, and there is no hope of further excavation at present.

Professor Busk described Captain Brome's work, in a paper read to the International Congress of Archæology at Norwich (12), and published a study of the bones from Genista 1 in *Trans. Zool. Soc.* (13).

In 1868, Captain Brome's valuable work was brought to an end by an order from the War Office, and he was dismissed from his post and from the Services because he had employed prison labour for scientific purposes (6).

Dr. W. L. H. Duckworth (14) carried out excavations at Gibraltar in 1910-11-12. He investigated all the caves already known which he could identify, or which are still accessible, and explored two which had remained untouched, high up on the eastern face of the Rock. In one of these an interesting Neolithic skeleton was found, associated with pottery and stone implements, but none of Dr. Duckworth's excavations yielded any trace of an older industry. It was suggested at the time that some of the stone implements were Palæolithic, but M. Breuil (10) stated that he considered none of them to be earlier than the Neolithic, an opinion I was afterwards able to verify, thanks to the kindness of Dr. Duckworth in allowing me to examine his material.

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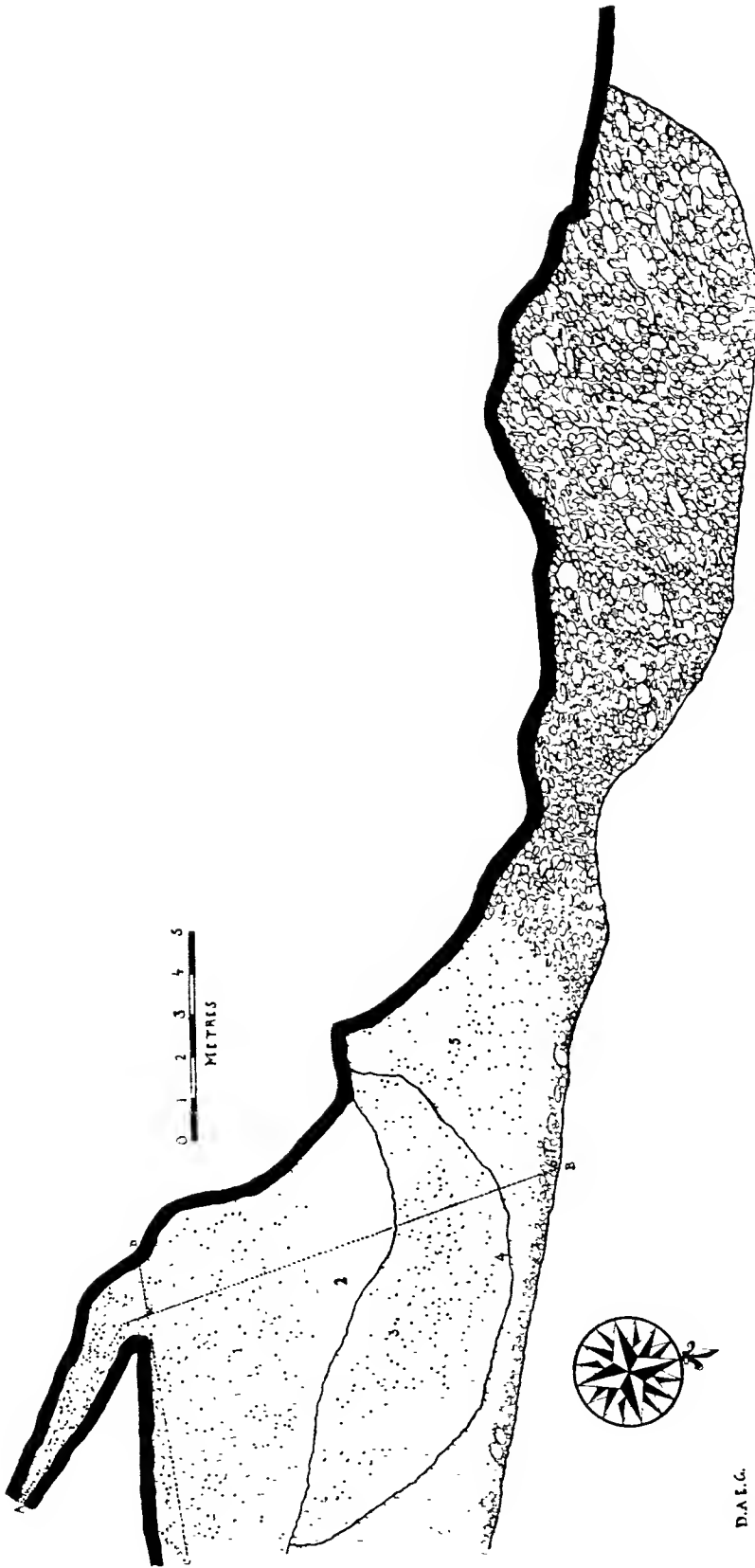
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§ 2.

The Mousterian site at Devil's Tower was discovered in 1917 by the Abbé Breuil, then acting as diplomatic courier between Gibraltar and the French Naval Bureau at Madrid (1). In the course of a visit to the North Front of the Rock he noticed fragments of fossil-bone in the talus of a small cave or rock-shelter at the foot of the immense vertical peak of Rock-Gun, immediately opposite a ruin known as the Devil's Tower. M. Breuil was unable to follow up this discovery at the time, but in 1919 he returned to Gibraltar and with the help of the late Colonel Willoughby Verner dug a trial trench a little way down the talus of the shelter, unearthing a number of animal bones and four stone implements of definite Mousterian type. My own work on the shelter, undertaken at M. Breuil's suggestion, occupied seven months, between November, 1925, and January, 1927, and was carried out by means of a grant from the Percy Sladen Memorial Fund.

The Devil's Tower cave is a narrow fissure running obliquely into the Rock of Gibraltar at the eastern end of the North Front, 350 m. from Forbes' Quarry (Fig. 1). It has a maximum height of 12 m. and a maximum width of 1·20 m., and 4 m. from the entrance it narrows to a mere crack. The rocky floor at the cave mouth lies 9 m. above sea-level, and 5 m. above the average level of the Neutral Ground which unites Gibraltar with the Spanish mainland. Before excavation the inner part of the fissure was filled to the roof with a deposit of fine sand which fell rapidly towards the entrance and emerged from the cave as a talus of sandy rubble running steeply down to the level of the Neutral Ground. The slope thus formed was limited and sheltered on the west by a wall of rock continuous with the west wall of the cave (Fig. 2), but on the east, where there was no natural boundary, it merged into a stony talus which from this point runs along the face of the Rock in the direction of the Mediterranean. A little way to the west of the Devil's Tower site lies the great cone of debris known as the Brecciated Talus, which extends as far as Forbes' Quarry (Fig. 1). As the result of blasting operations carried out some twenty years ago, the Devil's Tower scree is now separated from the Brecciated Talus by a stretch of bare rock, but old prints and maps show clearly that the talus of the cave formerly rounded the sheltering-wall on the west and overlapped the eastern end of the Brecciated Talus.

In the course of excavation I found that the fine sand which filled the fissure to the roof was an archaeological deposit in place, but that the sandy rubble into which it merged outside the cave was a more recent formation, a kind of "wash," masking a whole group of deposits consisting of banks of hard tufa alternating with layers of fine sand, which spread out fan-wise and nearly horizontally from the mouth of the cave, their outer edges forming a series of steps (Pl. II). The work carried out consisted in emptying the cave down to the rock floor and removing the talus or terrace deposits over an area extending from the rock wall which bounded them



D.A.E.G.

FIG. 2.—PLAN OF THE DEVIL'S TOWER SITE, SHOWING THE SHELVES OF THE DEPOSIT AFTER THE "WASH" OF SANDY RUBBLE HAD BEEN REMOVED.
(1) Fine sand, resting on (2) Calcareous tufa. (3) Fine sand, resting on (3) Calcareous tufa. (5) Fine sand, resting on (6 7) Raised beach, with layer of pink travertine at surface.

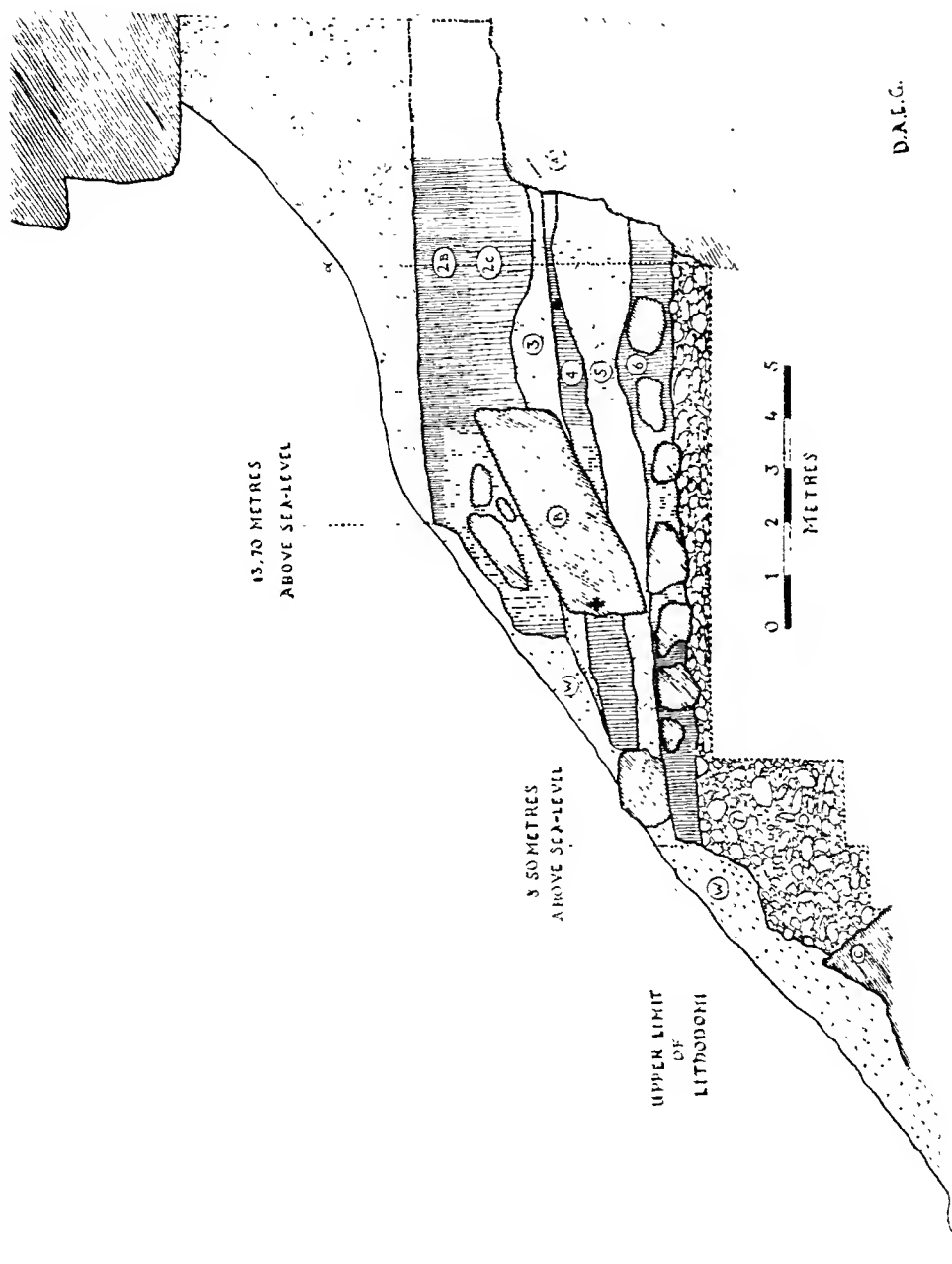


FIG. 3.—SECTION 1 (A-B OF PLAN (FIG. 2)).

1. Fine sand. 2. Calcareous tufa. 3. Fine sand. 4. Brownish-grey travertine or tufa. 5. Fine sand. 6. Pink travertine. 7. Raised beach. W. "Wash" of sandy rubble. B. Rocks blocking the fissure. C. Rampart of rock in front of raised beach. + + Portions of human skull.

on the west to a line 4.50 m. to the east of the cave mouth. Seven layers of deposit were revealed in this way, the succession from above downwards being as follows (Fig. 3, Section 1):—

1. Fine sand, filling the fissure to the roof.
2. Calcareous tufa, 1–4 m.
3. Fine sand, 20 cm.–1 m.
4. Travertine, 10–80 cm.
5. Fine sand, 40 cm.–1.40 m.
6. Travertine, 50–75 cm.
7. Raised beach, with its surface at 8.50–9 m. above sea-level.

Layers 1–5 contained archaeological material, the industry from top to bottom being Mousterian.

The following is a more detailed account of the deposits:—

Layer 1.—*Fine sand* (maximum thickness, 4.50 m.), rising to the roof in the inner part of the fissure, but falling to 1.30 m. at the entrance, and at 4 m. to the north of this point, thinning out and merging into the “wash.” To the east, layer 1 practically disappeared at 4 m. from the cave mouth owing to a sharp rise in the underlying bed (Fig. 4, Section 2).

The sand was light yellow in colour, growing darker towards the base, and showed no signs of bedding. On the terrace and in the mouth of the cave it was very soft, but inside the fissure it was cemented in places into a very hard sandstone. Throughout it contained land-shells in abundance, mussels and limpets brought for food, and a large number of animal bones, many of them broken by man and burnt. Fragments of charcoal were scattered through the deposit, but in no place was there any continuous hearth. Archaeological remains were limited to a few rough flakes of quartzite and two fragments of bone marked by use as compressors.

Layer 2.—*Calcareous tufa*, 1–4 m. thick, projecting an average distance of 4 m. from the rock face, and falling steeply at the outer edge of the terrace. Immediately opposite the mouth of the cave it was hollowed out into a channel 1.50 m. deep and 2 m. wide, running along the western rock wall (Fig. 4, Section 2). At the point where this channel met the outer edge of the tufa the latter, instead of ending abruptly, as elsewhere, fell in two well-marked steps with a steep slope between. The surface of the deposit inside the cave was continuous with the floor of the channel, which showed a very even fall of 20 cm. from the back of the fissure to the edge of the uppermost step. It was evident that this hollowing out of layer 2 had been produced by running water before the deposition of the overlying sand.

Layer 2 varied greatly in consistency, but in a general way the following subdivision, from above downwards, held good over the whole area excavated:—

Division 2a.—1.50 m. Tufaceous clay, very dark in colour, and containing remains of hearths. Land-shells, edible sea-shells, and animal bones burnt or broken

by man were fairly abundant, but only two implements and a handful of flakes were found. Owing to the channel described above, this division was not present in the cave or on the terrace immediately in front of it, but it was well developed to the east of the entrance. In the east wall of the trench it was still slightly tufaceous, although sandier than it had been near the cave, and a thin hearth was visible near the top.

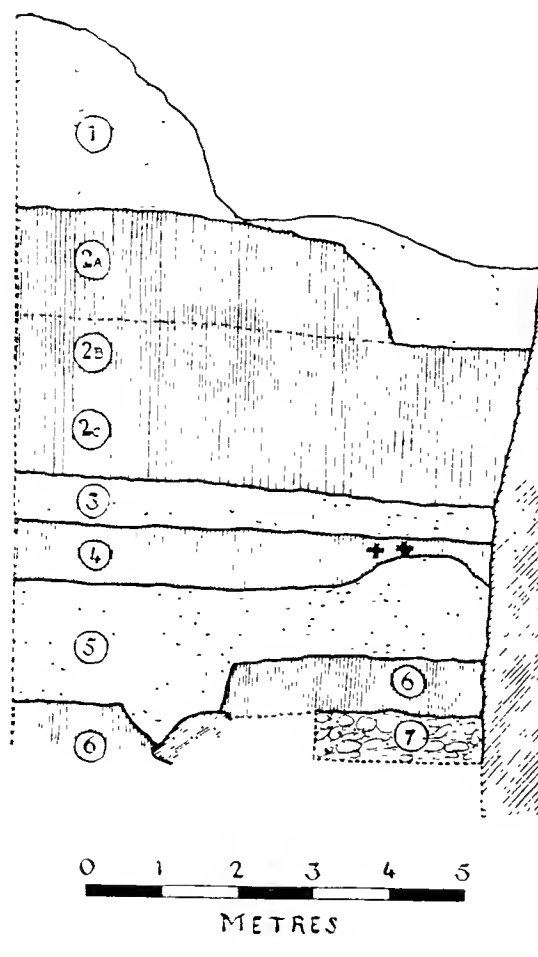


FIG. 4.—SECTION 2 (C-D OF PLAN (FIG. 2)).

1. Fine sand. 2. Calcareous tufa. 3. Fine sand. 4. Brownish-grey travertine or tufa. 5. Fine sand. 6. Pink travertine. 7. Raised beach. †† Portions of human skull.

Division 2b.—1.50 m. Porous tufa, varying in consistency from a moderately hard travertine to a tough sticky clay, and containing occasional small pockets of fine sand: 4 m. to the east of the cave mouth this division merged into unlaminate sand, apparently sterile, containing large fallen blocks of limestone. Land-shells, edible sea-shells and animal bones were very abundant all through division 2b.

A large number of the bones had been burnt and broken, but there were also remains of small birds and rodents in great quantity, and larger bones that had been gnawed by wild animals. Fragments of charcoal were common, and in places the deposit was very dark in colour, but there were no clearly defined hearths. In the mouth of the cave was a large heap of mussel shells, many of them blackened by fire. Inside the fissure, where traces of human occupation were slight, the travertine was hard but discontinuous, and the gaps were filled with soft brown or grey earth containing many bones of large birds. Implements and flakes of quartzite and flint were found scattered all through division 2*b*, though not in abundance.

Division 2c.—Whitish crumbling tufa, 40 cm.—1 m., merging on the east into sterile sand. It yielded a certain number of bones and a few quartzite flakes, but contained no hearths or traces of charcoal. Land-shells and small bones were exceedingly abundant at the base.

Layer 2 contained a large quantity of angular fragments of limestone and a number of big blocks. One of these (B of Section 1, Fig. 3), measuring 4 by 1·50 by 1·50 m., lay obliquely in the deposit immediately in front of the cave, its lower end projecting below the base of layer 2 into the underlying beds.

Layer 3.—*Fine sand*, 20 cm.—1 m. This bed, which was equal in extent to the hard deposit (layer 4), on which it rested, projected an average distance of 6 m. from the face of the rock. Along the edge of the terrace, where it was not capped by layer 2, it was in contact with the "wash," but in spite of similarity of material the division between the two was clearly visible.

A well-marked hearth was present over practically the whole area of layer 3, but the outer edge of the terrace to the east of the cave mouth appeared to have been the chief zone of occupation, for the sand here was very much blackened and remains were very abundant. In front of the cave the greater part of the space was occupied by the large rock (B) mentioned above, but between it and the western wall of the terrace lay a hearth containing a few bones. Behind the rock, layer 3 increased in thickness to correspond with a hollowing out of the under surface of layer 2, and the upper half of the deposit at this point consisted of a particularly fine yellow sand containing a number of whole bones of bear. Inside the cave all traces of human occupation disappeared, and the sand merged into a reddish cave-earth. At 1·50 m. from the entrance this deposit came to an end against the top of a group of rocks (A of Section 1, Fig. 3), which rose from the floor and blocked the fissure.

Layer 3 contained a large number of burnt and broken bones, and the usual land shells and edible sea-shells, the latter forming thick layers in the hearths. Rough flakes of flint and quartzite were more abundant than in any other level—there was, in fact, a regular working-floor—but finished implements were rare and crude. A curious feature of this level was a collection of small objects brought from the beach—quantities of little pebbles, a few rolled fragments of shell having the form of tiny plaques, and a shark's tooth.

Layer 4.—*Brownish-grey travertine or tufa*, 10–80 cm., extending an average distance of 6 m. from the face of the rock. On the terrace in front of the cave this deposit was as hard as building-stone, but behind the rock (B) (the lower end of which was embedded in layer 4), and immediately in front of the cave, it changed to a porous crumbly tufa, which ran back into the fissure for a distance of 1·40 m., ending against the group of rocks (A). In the eastern part of the terrace the travertine was much less hard than in the western part, and in the east wall of the trench it changed suddenly into loose un laminated sand. A little way to the east of the rock (B) another large block of limestone had fallen near the outer edge of layer 4, breaking off a slab of travertine about 4 m. square, and driving it forward and downward into the underlying bed of sand. At a later date, when layer 3 was being deposited, a large amount of material from the hearths in that level was washed down into the fissures resulting from this break, so that the stratigraphy at this point was rather confused. The block of stone itself projected above the surface of the "wash," and had at some time been partly destroyed by dynamite. The charge cannot, however, have been very big, for it had merely blown away the upper, exposed surface of the rock, without disturbing the surrounding beds.

Animal bones, many of them broken or burnt, edible sea-shells and flakes of flint and quartzite were found in layer 4, chiefly in the western side of the trench. They were particularly abundant near the western wall of the terrace alongside the rock (B), where the travertine was hardest. There had evidently been a pool or swirl of water at this point which had collected the greater part of the remains from the layer, for the travertine was packed with a confused mass of bones over an area of about 2 sq. m.

The greater part of a human skull was found in this layer, the frontal and left parietal lying in the swirl described above, and the right temporal, right maxilla, and lower jaw in the mouth of the cave (Section 1, Fig. 3).

Layer 5.—*Fine sand*, 40 cm.–1·40 m. This bed was equal in extent to the travertine on which it rested, and projected an average distance of 8 m. from the face of the rock. Its base was solidified, and formed a layer of moderately hard sandstone about 30 cm. thick. Inside the cave the deposit was dark brown in colour and rather clayey.

Land-shells, edible sea-shells, and animal bones, some broken by man or burnt, were found in layer 5, but in smaller quantities than in the other levels. Small hearths were present in places, but contained very little material. Implements and flakes were exceedingly rare.

Layer 6.—*Pink travertine*, 50–75 cm. This deposit rested immediately on the raised beach, and contained sea-worn pebbles and boulders, many of the latter pierced by holes of lithodomi. It represented, in fact, the original surface of the beach, which had become converted into a land surface after emergence had set in.

In the mouth of the cave the pink travertine gave way to a crumbling dark-coloured tufa which rested immediately on the rocky floor of the fissure, or, rather, on the base of the group of rocks which had blocked the fissure from the base of layer 2 downward.

Layer 6 was not excavated over the whole area, as it was exceedingly hard and contained very little material. A trench 2·50 m. wide was opened with the help of blasting-gelatine from the edge of the terrace to the mouth of the cave, and this yielded a certain number of small animal bones and land-shells. No implements or kitchen remains were found, but a single fragment of charcoal gave evidence of man's presence at this level.

Layer 7.—Raised beach. with its surface 8–9 m. above sea-level, projecting an average distance of 8 m. from the face of the rock, its outer edge forming a nearly vertical cliff 4·50 m. high (Pl. II). This deposit was visible in part before the excavation of the site was begun, for it emerged from the cave talus towards the west, and was exposed for a distance of 15 m. along the foot of the rock. It had been cut off at the western end by quarrying, so it is impossible to say how far to the west it may formerly have extended. At the eastern end it probably runs on for some distance under the stony talus which lies to the east of the site.

The surface of the beach lay just below the level of the cave floor, but the presence of small beach pebbles wedged into the cracks of the group of rocks (A), up to a height of 2 m. above the floor, showed that the sea broke into the cave in times of storm.

A trench 3·50 m. deep, sunk opposite the mouth of the cave, failed to reach the bottom of layer 7, but a sounding made against its western end showed clearly that it passes below the superficial deposits of the isthmus into the underlying marine sands.

The beach was made up of sea-worn fragments of limestone and pebbles of various rocks, the interstices being filled with sand. Shells were very abundant, and the boulders were riddled with holes of *lithodomi*.

The deposits of the Devil's Tower site clearly belong to two different stages. The raised beach was laid down when the sea was at least 9 m. above its present level and Gibraltar was an island, whereas the sands and travertines, with their terrestrial fauna and remains of human occupation, can only have been deposited in a period of emergence when the Rock was once more joined to the mainland.

The beach obviously corresponds to the series of late Pleistocene marine deposits which occur all round the Mediterranean at heights varying from 7 to 20 m. above sea-level (2, 3, 5, 6), and which are grouped by M. Depéret in his Monastirian stage, with shore-line at 18–20 m. (7, 8). In general the fauna of these beaches is that of the Mediterranean of to-day, the most notable difference being the occurrence in many of them of *Strombus mediterraneus*, a shell now extinct in the Mediterranean, which is identical with the living form *Strombus bubonius* of the coast of Senegal. At

Gibraltar itself there are traces of marine deposits at various heights from 210 m. downwards (9), and of these the 50-feet (15 m.) beach (now quarried away), observed by James Smith at Europa Point (10), although higher in level than the Devil's Tower beach, appears to fall within the limits of the Monastirian stage. Mr. Smith also noted a fissure in a quarry on the north front (probably Forbes' Quarry), in which holes of *Pholades*, clusters of rock-mussel, and *Balani* adherent to the rock were visible at 24 feet (7 m.) above sea-level, that is, approximately at the level of the Devil's Tower beach.

The sands and travertines at Devil's Tower are clearly wind-borne. Apart from their contents the way in which layer I was driven up against the face of the rock and into the roof of the fissure demonstrates this beyond question. That the beds of tufa and travertine were originally formed in the same way and from the same source is shown by the fact that when they are dissolved in acid the residue is a fine yellowish sand identical with the material of the uncemented layers.

Monsieur Boule, in his study of the Grotte du Prince at Mentone (2), has shown that in the period which followed on the deposition of the 18-20 m. beach the land almost certainly stood considerably higher above the sea than it does to-day. The floor of the Grotte du Prince was covered with a marine deposit 1.50-2 m. thick, with its surface at 12 m. above sea-level, and the walls of the cave were perforated with holes of lithodomi to a maximum height of 25 m. above sea-level.¹ Overlying the marine bed was a series of archaeological layers containing a Mousterian industry associated with *Elephas antiquus*, *Hippopotamus* and *Rhinoceros mercki*. M. Boule considers it impossible that these animals could have moved about in the neighbourhood of the Grimaldi caves under present conditions, and in order to explain their presence he supposes a negative movement which exposed the present sea-bottom up to about the 200 m. line, and so created a wide land-platform in front of the caves. General de la Mothe (3, 4) in his studies of the raised beaches and alluvial deposits of Algeria, has shown from geological evidence alone that such a stage of maximum emergence must have followed on the deposition of the 18-20 m. beach.

At the Devil's Tower we have conditions which, in spite of minor differences, are comparable with those of the Grotte du Prince. The archaeological layers are perhaps slightly more recent than the lower hearths of the Grotte du Prince, since rhinoceros and hippopotamus are absent, and the only fragment of elephant lay on the surface of the beach. At the same time they are probably older than the uppermost Mousterian level of the Grotte du Prince, in which the big pachyderms have disappeared and reindeer is present for the first time. I think we are therefore justified in placing the sands and travertines of the Devil's Tower in the stage of emergence

¹ M. Depéret (*Bull. Soc. Géol. de France* (1906-7), p. 217), has stated that in his opinion this beach belongs to the older Tyrrhenian stage (with shore-line at 30-35 m.), but the reasons given by M. Boule for including it in the low-level series, classified by M. Depéret as Monastirian, appear to be conclusive.

which both M. Boule and General de la Mothe consider to have followed on the deposition of the Monastirian beaches.¹

A negative movement in the neighbourhood of Gibraltar which exposed the sea-bottom up to the 100 m. line only, would be sufficient to create an extensive land-platform to the east and north-east of the Rock, and a smaller one to the west (Fig. 5).



FIG. 5.—BATHYMETRIC MAP OF THE STRAITS IN THE NEIGHBOURHOOD OF GIBRALTAR, SHOWING THE 100-METRE, 200-METRE AND 300-METRE LINES.

A wide stretch of sand-hills would thus lie between Gibraltar and the Andalusian hill-country, and the northerly wind, sweeping across these dunes, would gradually pile up a heap of sand against the face of the Rock.² Meanwhile, Mousterian man was visiting the Devil's Tower shelter, and leaving his traces on the sandy slope

¹ M. F. Doumergue has described a site comparable with the Devil's Tower and the Grotte du Prince, at Karouba, near Mostanagem, on the Algerian coast, in which an Upper Mousterian industry is found in sands of subaerial origin, lying immediately on a beach with its surface at 18 m. (F. Doumergue: *Description de deux stations préhistoriques à quartzites taillés des environs de Karouba (Mostanagem)*. Oran, 1922.)

² The great sand-hills which mask the eastern face of the Rock above Catalan Bay, and which suppose a wide stretch of land to the east at the time of their formation, may belong to this period of maximum emergence. Their great thickness, as compared with the Devil's Tower deposits, would be explained if in late Pleistocene times, as at the present day, the east and south-east winds were far more prevalent than those from the north and north-east (Ramsay and Geikie, *Q.J.G.S.*, xxxiv (1878), p. 526).

which rose a little higher every year. The conversion into tufa of the layers 2, 4, and 6 must have been due to the presence of a calcareous spring—now dried up—which alternately flowed and ran dry, in harmony with climatic changes. The three unaltered beds of sand would thus correspond with periods of dry climate, when the spring was more or less inactive, and the three layers of tufa with wet periods, when its water, heavily charged with carbonate of lime, impregnated the surrounding sand. From the fact that the tufas were hardest in the western side of the trench, and disappeared entirely, giving way to uncemented sand, 4 m. to the east, it would appear that this spring rose somewhere near the mouth of the cave.

The question whether the negative movement just described established a land-bridge between Spain and Africa is one that cannot be avoided here. Immediately opposite Gibraltar the Straits are 700 m. deep, but slightly to the west there is a line of high ground which would be exposed by a fall of 300 m. in the sea-level. Moreover, some authorities consider that the Straits have been considerably deepened since Pleistocene times. On the whole, however, the evidence is decidedly against the existence of such a land-bridge at any time later than the Pliocene. The Quaternary faunas of Spain and North Africa are, in the main, markedly different, the former containing no giraffe, camel, or antelope. Had there been a Pleistocene land-bridge in the neighbourhood of Gibraltar the bone-breccias of the Rock, in which fossils are so abundant, would have shown some trace of it.¹ The presence in the gravels of the Manzanares, at Madrid, of human industries so far considered as exclusively African (11, 12), may seem to raise a difficulty, but both Breuil and Obermaier consider that the passage of the Straits on some kind of raft would present no insuperable obstacle to Palæolithic man.

The history of the Devil's Tower deposits closes with the talus of sandy rubble which I have described as the "wash." This was made up of a dark-coloured streaky sand containing lumps of tufa, bones, implements, and fragments of limestone, and belongs to a period when the deposition of blown sand had practically ceased and the seasonal rains were wearing away the terrace deposits. In time the material washed from the edges of the layers came to form a thick mantle which protected them from further degradation, and in this way the site was covered up and remained completely hidden till the present day.

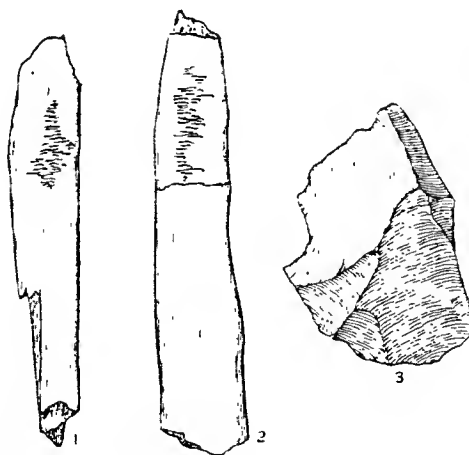
It has sometimes been claimed that the presence at Gibraltar of the Barbary ape (*Macacus inuus*) is evidence of a Pleistocene land-connection with Africa, but there can be no doubt that these apes were brought over either by the Romans or the Moors. No fossil remains of *Macacus* have ever been found on the Rock.

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- (2) Boule.—*Les Grottes de Grimaldi*, tome i, fasc. ii, pp. 82-156. "Géologie et Paléontologie" (Monaco, 1906).
- (3) De la Mothe.—"Note sur les anciennes plages et terrasses du bassin de l'Isser et de quelques autres bassins de la côte algérienne," *Bull. Soc. géol. de France*, 1899, p. 257.
- (4) ———— "Étude comparée des systèmes de terrasses des vallées de l'Isser, de la Moselle, du Rhin et du Rhône," *Bull. Soc. géol. de France*, 1901, p. 297.
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- (9) Ramsay and Geikie.—"On the Geology of Gibraltar," *Q.J.G.S.*, xxxiv (1878), p. 505.
- (10) James Smith of Jordan Hill.—"On the Geology of Gibraltar," *Q.J.G.S.*, ii (1846), p. 41.
- (11) Pérez de Barradas.—*Études sur le terrain quaternaire de la vallée du Manzanares* (Madrid, 1926).
- (12) Obermaier.—*El Hombre Fósil*, 2nd ed., p. 196 (Madrid, 1925).

§ 3.

The industry of the Devil's Tower site is Mousterian throughout. Even in the upper part of layer I and in the "wash," neither pottery nor other remains of a more

FIG. 6.—IMPLEMENTS FROM LAYER I. $\times \frac{1}{2}$.

recent period were found. The total number of implements and flakes is so small (under 500), that it seems likely that the site was no more than an occasional camping-ground, probably visited in the summer only, since in winter the sun does not reach it except for a few minutes after sunrise.

The majority of the implements and flakes are made of quartzite, varying in colour from light to dark grey. I have not been able to trace with certainty where this

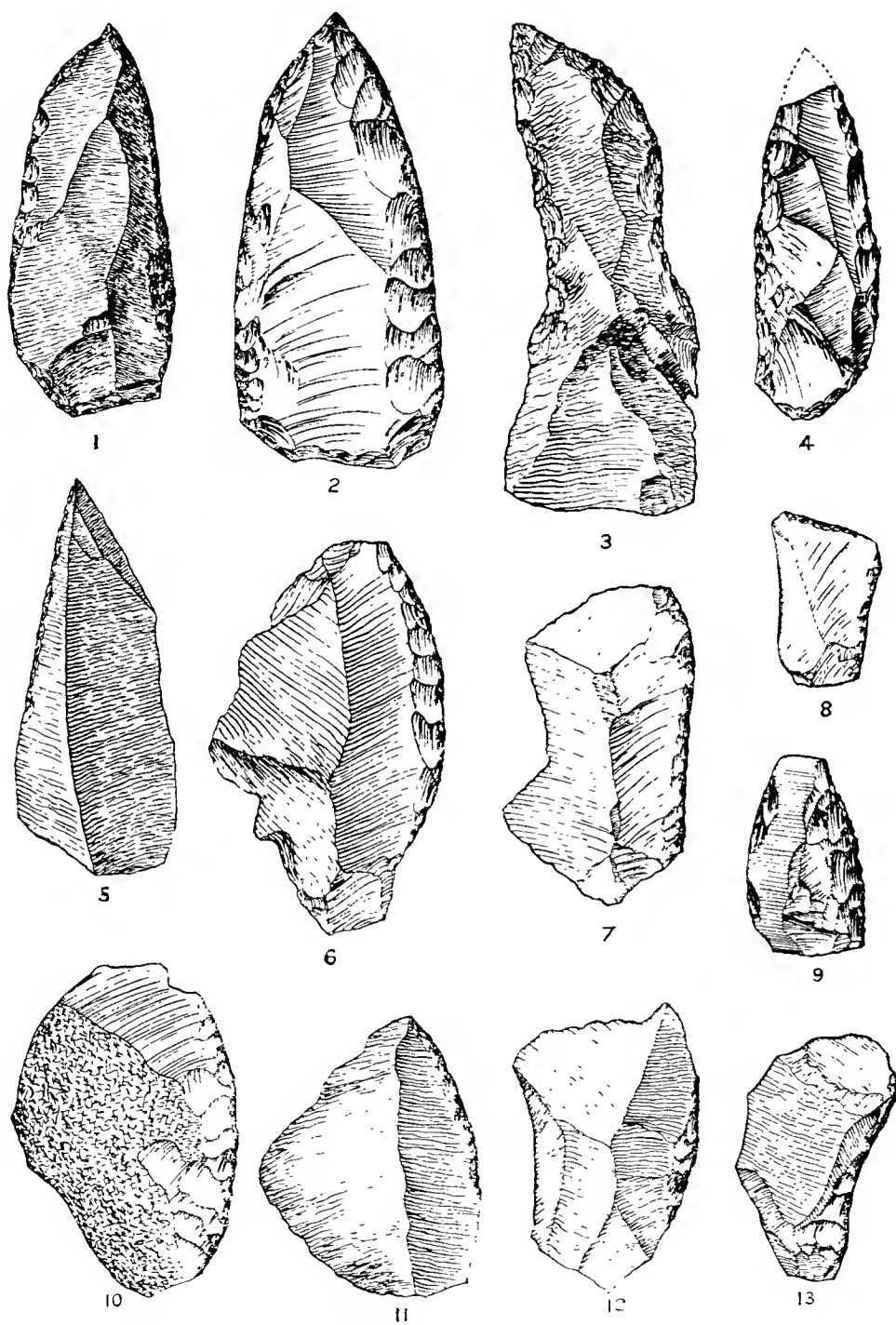


FIG. 7.—IMPLEMENTS FROM LAYER 2. 1, 2, 3.

comes from, but Abbé Breuil thinks it was derived from certain conglomerates in the neighbourhood of Malaga. Other materials used are various flints and cherts which appear to have been picked up as beach pebbles, and a dark-red jasper with green bands which occurs *in situ* in the Rock itself.

Layer 1.—The archaeological material consists of two fragments of long bone, marked by use as compressors (Fig. 6. Nos. 1 and 2), similar to those found by Dr. Henri Martin in the Upper Mousterian of La Quina, six rough flakes of quartzite, and a few fragments. One of the flakes (Fig. 6. No. 3) has a faceted striking-platform, and another has been struck from a core on which the striking-platform had been prepared, but as the blow was given at right angles to it the facets occur along the edge of the flake instead of at the bulbar end.

Layer 2.—The greater part of the industry from this layer was found in the subdivision 2b. The proportion of well-finished implements to flakes and cores is very high.

Fig. 7. Nos. 1–5, are typical points, 1, 3, and 5 being of quartzite, and 2 and 4 of grey-white chert; 2 and 5 have faceted striking-platforms. Nos. 6, 7, 8, 10, 11, and 12, are ordinary side-scrapers, 11 and 12 being of quartzite and the rest of flint; in all except 6 the bulb of percussion is at the end of the flake; 7 alone has a faceted striking-platform. No. 13 is a concave scraper of blue-grey flint with faceted striking-platform.

Fig. 7. No. 9, and Fig. 8. Nos. 1–4, are side-scrapers retouched along both edges, 9 being of red jasper, 1, 3, and 4 of quartzite, and 2 of whitish flint; 3 and 4 have faceted striking-platforms.

Fig. 8. Nos. 5 and 7, are roughly made implements of disc type, of red and green jasper respectively. No. 6, of red jasper, with faceted striking-platform, might be described as a rough graver, as it shows three downward blows on the under-surface. No. 8 is a long blade which has lost its point: it is carefully retouched on the left-hand edge towards the base. No. 9 is a typical discoidal core of quartzite. No. 10 is a small blade of white flint with faceted striking-platform; although it bears no retouch, it is figured on account of its smallness and delicacy, rather unusual in Mousterian levels.

Layer 3.—Flakes and cores were more abundant in this layer than in any other, but finished implements were rare. It was evident from the large number of chips and the presence of lumps of quartzite pebble, roughly broken, that there had been a working-floor at this level.

Fig. 9.—No. 1 is a broken blade of yellowish-red jasper with faceted striking-platform, retouched along both edges. No. 2 is a blade of banded chert with inverse retouch down one edge. No. 3 is a rough concave scraper of quartzite retouched round the notch in the left-hand edge. No. 4 is a discoidal core of white chert.

A number of beach pebbles of all sizes were found in the hearths, and one of the largest of these had been made into a chopper by means of a few rough blows along

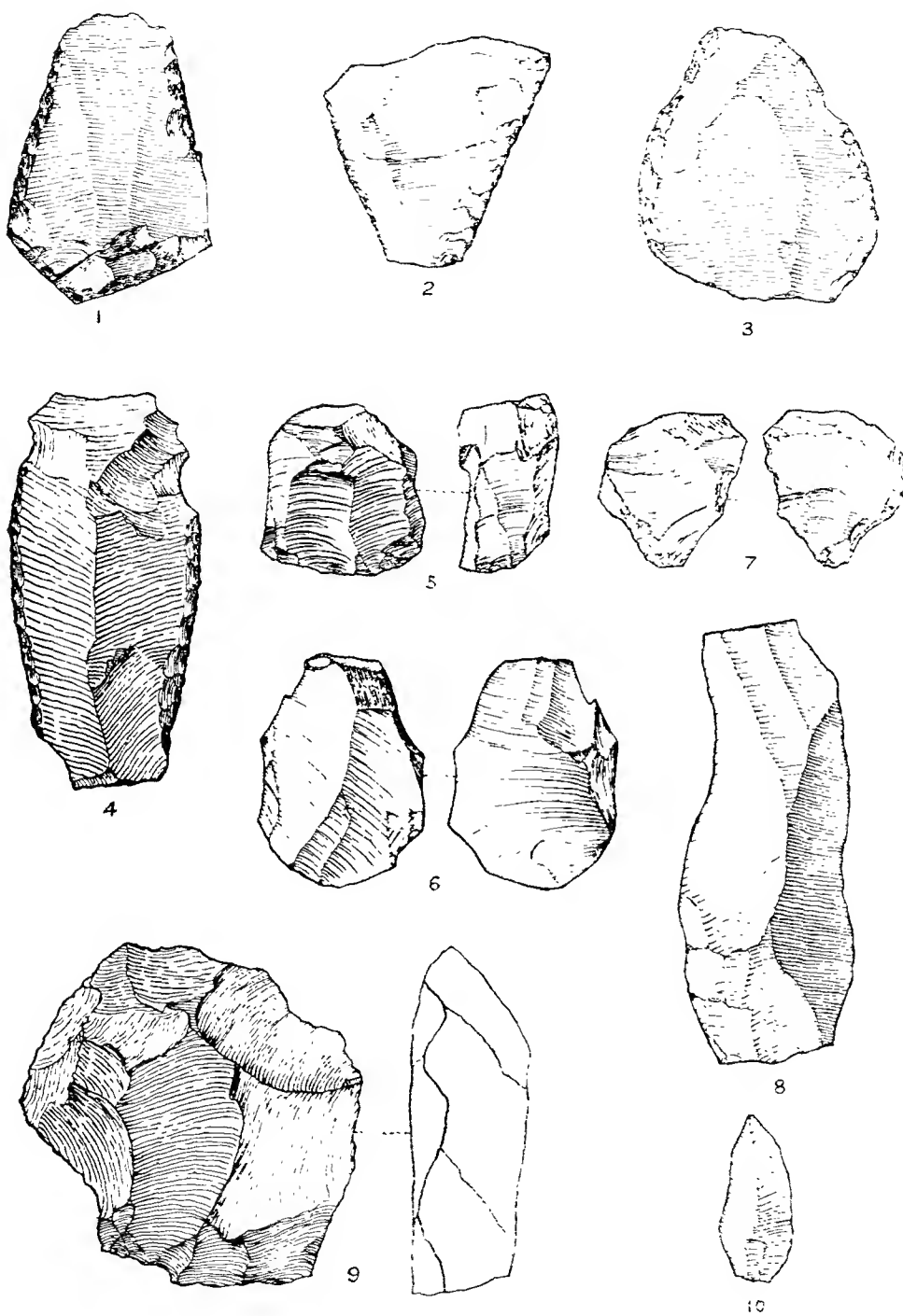


FIG. 8.—IMPLEMENTS FROM LAYER 2. $\times \frac{2}{3}$.

one edge, while another was slightly worn at one end by rubbing. Two fragments of limestone had been roughly retouched by use as scrapers.

Layer 4.—The industry of this layer was very poor. There were no well-made implements, and the greater part of the material consisted of rough chunks of quartzite and flint.

Fig. 9.—No. 5 is a beach pebble of flint roughly fashioned by two blows. No. 6 is a neat disc of quartzite. No. 7 is a graver made from a beach pebble of cretaceous flint. Of the two facets on the upper surface of the flake, one bears the cortex of the pebble and the other is due to a natural fracture, but on the bulbar surface the graver-blow is well marked.

Layer 5.—Traces of human occupation were extremely rare at this level.

Fig. 10.—No. 1, an oblique scraper of brown flint with faceted platform, is the only true implement. No. 2 is a discoidal core of quartzite.

The “wash.”—The sandy talus, or “wash,” was made up of material derived from all levels, but no implements were found in the lumps of tufa which it contained. A considerable number, however, occurred loose in the sandy part of the deposit, and it is probable that the majority of these came from layers 1, 3, and 5, though a few may be derived from layer 2, which was less compact than the other tufas, and, therefore, more easily broken up.

Fig. 10.—Nos. 3 and 4 are curved points of the Abri Audi type, both of quartzite. They were found near the top of the talus, just in front of layer 2: it is certain therefore that they are derived either from layers 1 or 2. No. 5 is an end-scraper of quartzite, which was found near the points just described. No. 6 is a concave scraper made from a thick flake of quartzite. Nos. 7 and 8 are well-made symmetrical flakes with faceted striking-platforms, retouched by use all round.

No hand-axes were found, either in place in the archæological layers or in the “wash.”

The industry of layers 1 and 2, and the implements found in the “wash” have a well-marked Upper Mousterian character. Specially typical are the utilized bones, the curved points of Audi type, the narrow well-made straight points, the preponderance of scrapers, and the high proportion of flakes so slender that they may fairly be described as blades. The industry of the lower levels is so poor as to be in no way typical, but the presence of a graver in layer 4, taken together with the general uniformity of technique throughout the site, and the absence of more archaic forms in the “wash,” suggests that these, too, belong to the Upper Mousterian.

We thus have an industry which is strikingly homogeneous, in spite of the thickness of the deposit in which it is contained. The fauna, too, as studied by Miss Bate, is much the same at all levels. If this appears surprising it should be borne in mind that blown sand accumulates very quickly, and that the period of time represented by the deposits at Devil's Tower is therefore probably much shorter than their volume would at first sight suggest.

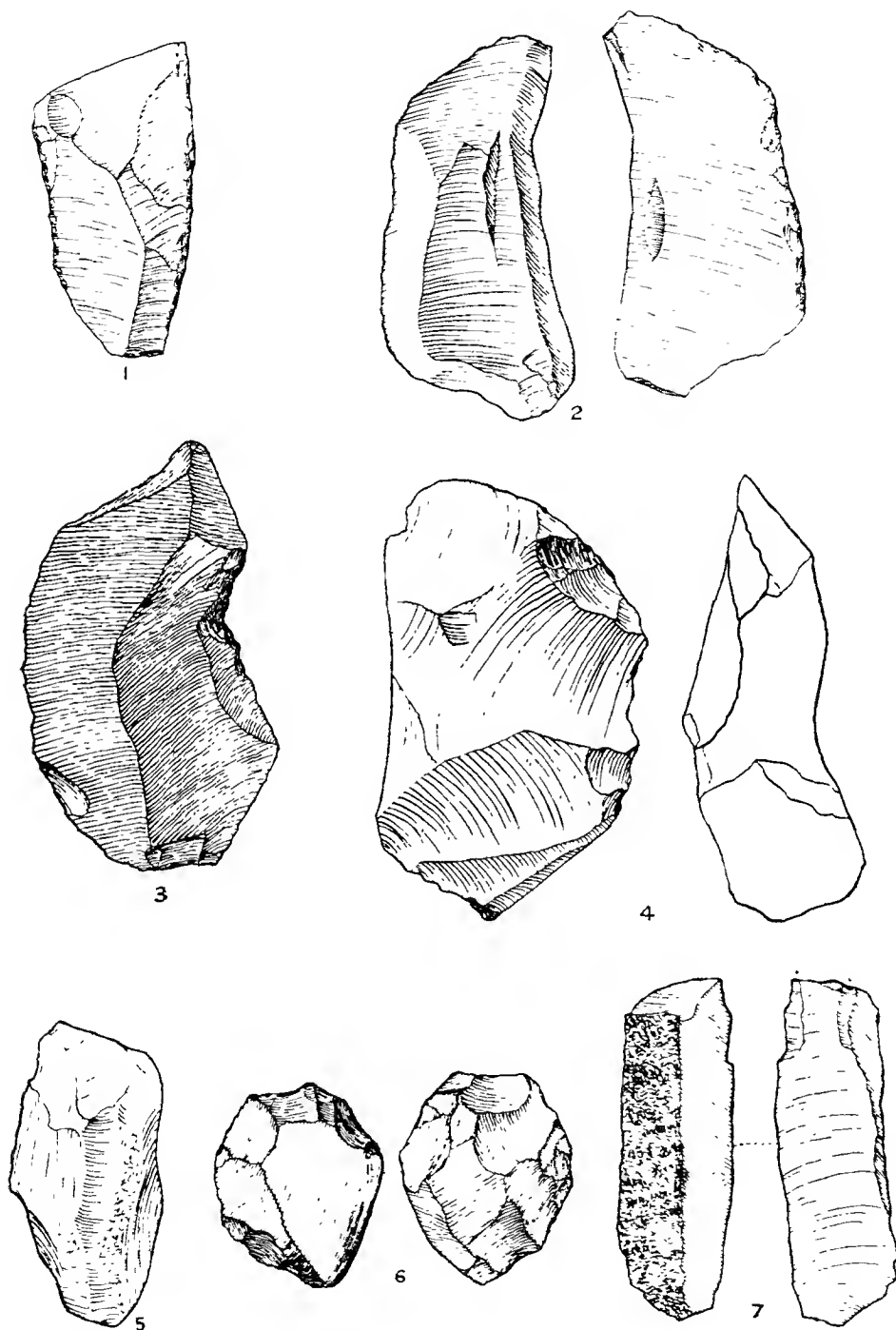


FIG. 9.—IMPLEMENTS FROM LAYERS 3 AND 4. N. 3.

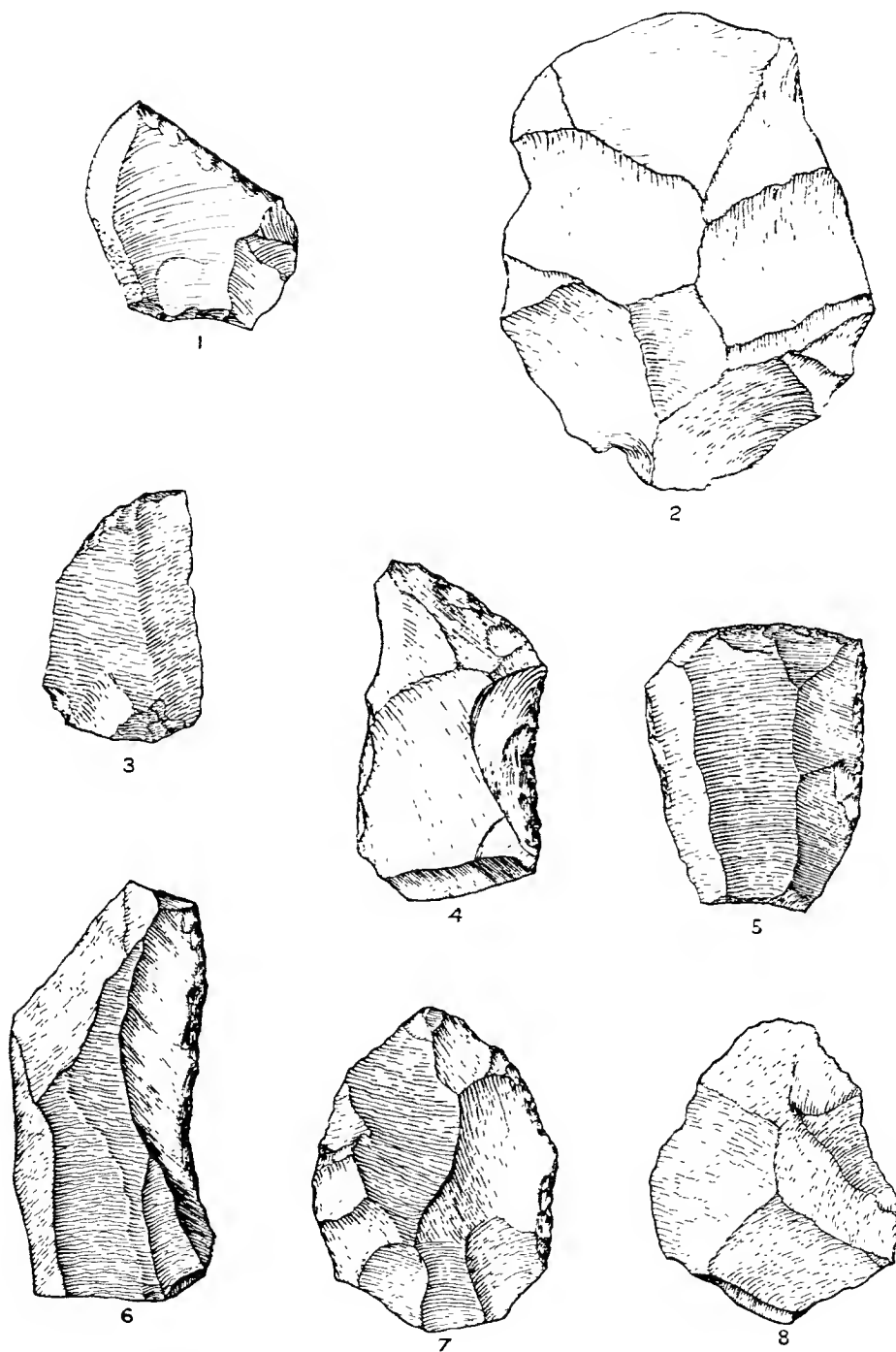


FIG. 10.—IMPLEMENTS FROM LAYER 5 AND THE "WASH." $\times \frac{2}{3}$.

§ 4.

The human skull mentioned in § 2 was found in the bed of travertine, layer 4, in the following conditions:—

Towards the end of May, 1926, I was obliged to put a heavy charge of blasting-gelatine into the rock (B) which blocked the terrace in front of the cave. This rock ran obliquely downward from the middle of layer 2 to the base of layer 4, and when it was blown up the explosion opened a large number of cracks in the surrounding travertine. Into these cracks wedges were inserted, and the travertine, which at this point was very hard, was removed in great blocks which were afterwards broken up with a hammer. On June 11th a big lump was removed slightly to the west of the gap left by rock (B), and 5·50 m. from the cave-mouth. On examining the face of the travertine left in place I noticed a thin edge of bone in the section, about 10 cm. from the surface of the layer. The surrounding deposit was very much cracked, and, after prizing open the cracks with a tool, I was eventually able to remove with my hands a chunk of travertine to the under surface of which adhered the bone of which I had seen the edge. This proved to be the frontal of a human skull, the outer surface of which had become completely detached from the surrounding deposit, while the inside remained filled with travertine. Three-quarters of an hour later the removal of another large block exposed a broken edge of a human parietal lying about 1 m. to the east of the frontal and at the same depth from the surface. The crack in the travertine had passed right through the bone, breaking up the edge which bore the sagittal suture, but I was able to recover the fragments. The part which remained *in situ* was completely embedded in the matrix, and it was necessary to chip away a block large enough to contain the whole bone.

The deposit surrounding the skull was carefully searched, but without result, and at the end of a week I was obliged to close down the dig on account of the heat. I returned to Gibraltar early in October, and three weeks later found a human lower jaw, right maxilla, and right temporal in layer 4, all lying close together in the mouth of the cave, 5·50 m. from the place where the frontal and parietal had been found. The jaw and temporal were in the crumbling tufa already described as filling the fissure at this level, but the maxilla, although only a few centimetres away, was embedded in a bank of hard travertine which lined the eastern wall.

Although layer 4 was afterwards searched over its whole extent, no other human bones were found.

It seems clear from the position of the bones that the skull originally lay in the mouth of the cave, but as it belonged to a very young individual it fell apart along the sutures, and the frontal and left parietal, together with those parts which are missing, were washed forward on to the terrace by the waters of the spring which converted the original sandy layer into travertine. The missing parts were probably carried further forward than the others, and so rolled down the slope and were lost.

It is probable that the skull was already separated from the body when it lay in the cave, for if the whole skeleton had been present some, at least, of the bones must have been found. On the other hand, the fact that the lower jaw lay quite close to the temporal and maxilla suggests either that decomposition was not complete at the time of deposition or that the jaw was fastened to the skull by a thong or string. In either case it seems impossible to avoid the conclusion that the skull was intentionally preserved, either as a trophy or in fulfilment of a pious rite.

APPENDIX A.

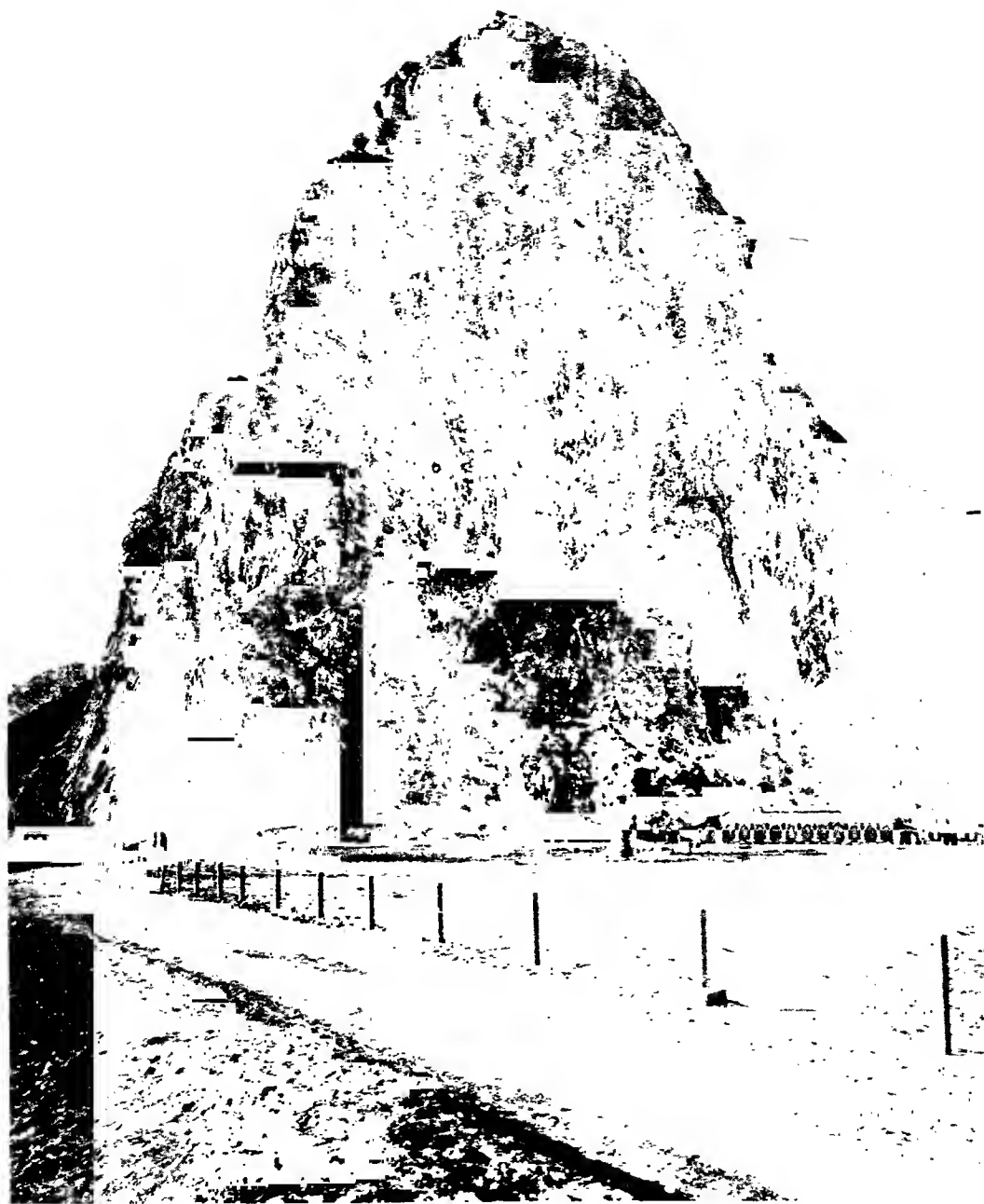
REPORT ON SANDS. By R. C. SPILLER, M.A.

Specimens from the following deposits were examined :—

- A.—I. From interstices of breccia. Layer 2.
- B.—I. Back of cave.
- C.—Sand from base of I inside cave.
- D.—I. Sandy bed I, taken from cliff face 6·40 m. from left-hand wall of cave, looking out.
- E.—Sand-pocket in II.
- F.—“Wash” from breccia, east side of trench.
- G.—Hearth layer just above skull.
- H.—Sand from skull-layer.
- J.—Sand from British lines.
- K.—Sand from eastern beach.
- L.—Sand from S m. beach.
- M.—Sand from dunes, East Gibraltar.

All shell and limestone fragments and any calcareous cement were removed by treatment with cold dilute hydrochloric acid before the examination of the mineral grains.

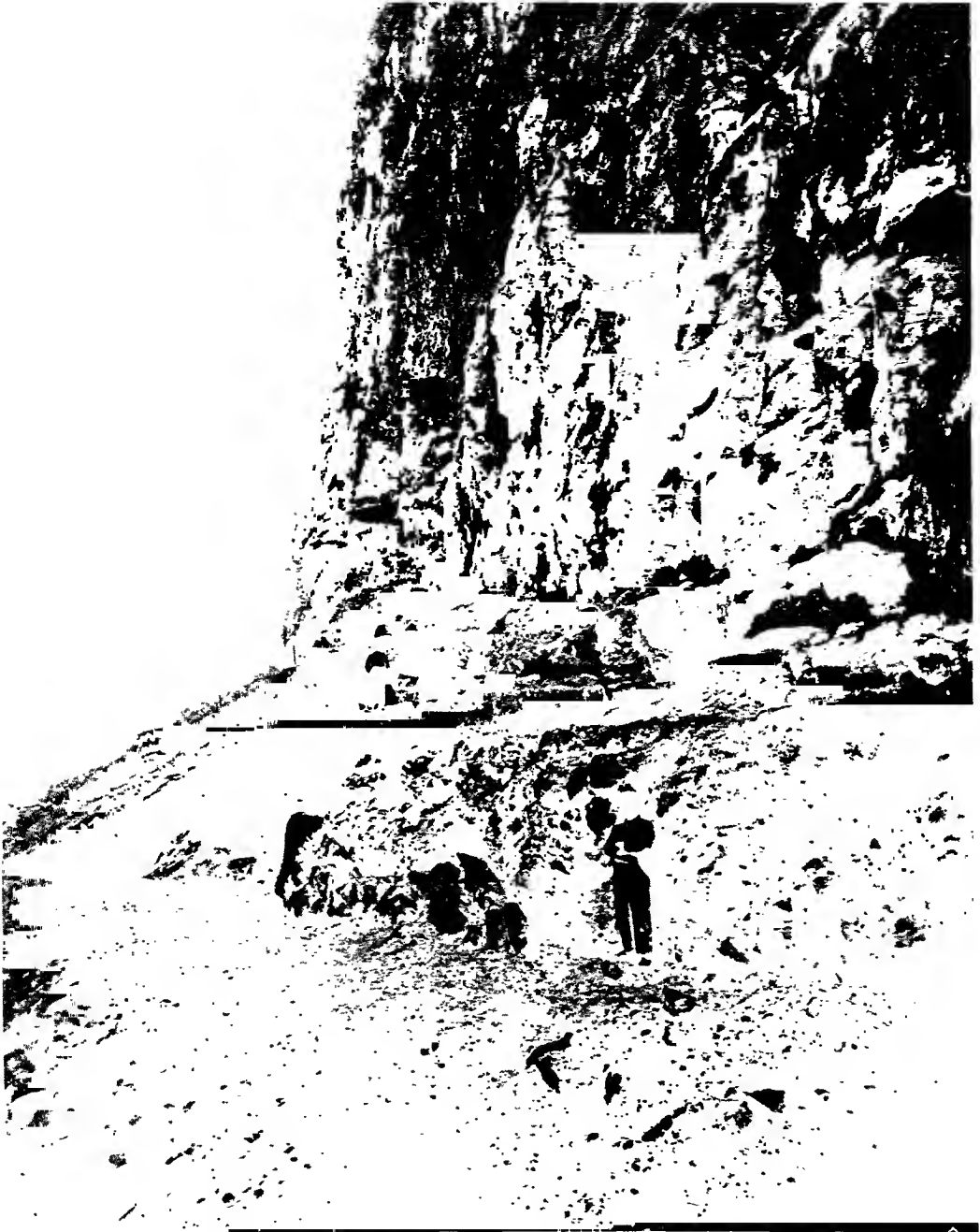
The grains are subangular in outline and only a very small percentage show a high degree of rounding. All specimens also give, by separation in bromoform, abundant crops of heavy minerals, and these two facts point to water being the chief factor in the transport of the grains to their present location. The heavy minerals are similar in all the specimens, and include abundant grains of a colourless pyroxene, showing lamellar twinning, which is probably so restricted in its occurrence *in situ* as to indicate a common source for all the specimens. The other common heavy minerals are andalusite, garnet, and pale-green pyroxene. Crystalline schists, including andalusite schists, are common in South Andalusia, and that area may well have been the region from which the sands were derived.



VIEW OF ROCK-GUN FROM THE EASTERN BEACH, GIBRALTAR, SHOWING THE DEVIL'S TOWER CAVE (MARKED WITH A CROSS).

(Photograph, Branland, Malin, Gibraltar.)

EXCAVATION OF A MOUSTERIAN ROCK-SHELTER AT DEVIL'S TOWER, GIBRALTAR.



VIEW OF THE DEVIL'S TOWER SITE AFTER THE "WASH" OF SANDY RUBBLE HAD BEEN REMOVED.
(The man in white is standing against the raised beach; the others are on the edges of the different layers of tufa and travertine.)

(Photograph, Beaudant, Malin, Gibault.)

EXCAVATION OF A MOUSTERIAN ROCK-SHELTER AT DEVIL'S TOWER, GIBRALTAR.

CHAPTER II.—HUMAN REMAINS.

(Pls. III-V.)

By L. H. DUDLEY BUNTON.

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THE work of cleaning and preparing the specimen has been carried out in the *Department of Human Anatomy in Oxford*. I am very much in debt to Professor Arthur Thomson for putting resources, both material and financial, at my disposal during the work, and still more for his help and advice. The drawings were made by Miss Garrod, who has throughout been my collaborator in the arduous task of cleaning the fragments. The X-ray photographs, both those included in the text and those stereoscopic views which are not published, but which have been used for studying the remains, are the work of Dr. R. H. Sankey, who has spent much time and trouble in making them. The other photographs were made by Mr. W. Chesterman, Assistant in the Department, who prepared all the prints for the press: the paper owes much to his care and skill. My colleague Dr. Norman Odgers, Senior Demonstrator in Anatomy, has been most kind in helping me in many ways. Outside Oxford, I am indebted to Professor Elliot Smith and his staff for going through the manuscript and making many useful suggestions: while on the dentition, my brother (Mr. J. L. Dudley Buxton) and Mr. G. Northcroft have offered expert advice. My very best thanks are due to these gentlemen and to those others who have helped during the eighteen months which the work has occupied. I had hoped to publish in this paper a reconstruction of the skull based on the remains, but it has not been possible to finish this in time, and it is hoped that it will be published later.

Technique.

The specimens when they reached Oxford were embedded in travertine, a hard rocky concretion deposited by the action of water impregnated with lime. The upper part of the frontal bone was exposed, but most of the bones were almost

entirely enveloped in this matrix. The force of the blasting operations used to break up a large rock in the cave had severely shattered the matrix, which was full of tiny fissures and had broken the embedded bones in many places. The task of removing the matrix was therefore extremely difficult. The travertine was chipped off first with cold chisels and subsequently with little chisels which I made out of hard steel and old drills. Turpentine and hot water were used as a lubricant. An unsuccessful attempt was made to use a dental drill, but the hardness of the travertine blunted the drills so quickly that this method had to be abandoned. Owing to the shattered condition of the bones their internal aspects could not be exposed without great risk and further fracture of the fragments. Accordingly, as soon as the outer surface of the frontal, parietal, and temporal bones had been cleaned they were embedded in a waste mould of plaster of Paris. The travertine was then treated with dilute sulphuric acid which was allowed to run into the fissures, and the small grains of sand released from the binding material were removed with a glover's needle from the internal surface of the bones. The fragments of the frontal and parietal bones as they were removed from the plaster bed were then cemented together with "Croid," the pieces being placed on a mould, which had been made before the matrix was removed and the broken fragments allowed to fall apart. The individual bones are therefore exactly as they were found, the missing parts, where it was necessary to restore them owing to the need for strengthening the bones, were replaced with a mixture of bees'-wax and paraffin-wax. Fortunately it has only been necessary to run in the wax in a very few places. Owing to the nature of the sutures it was easy to articulate the frontal and parietal bones and to restore them to their original form.

The anterior aspect of the maxilla was exposed and damaged at the time of excavation, and it has not been possible entirely to replace the fragments. All the travertine has been removed from the maxilla, except from the interior of the maxillary sinus, which it did not seem advisable to clear out, as nothing would have been gained and considerable risk to the specimen incurred.

The mandible was in a softer matrix. It exhibited two old fractures. These have been repaired. As the body of the bone had broken across the line of the unerupted 1st and 2nd molars these teeth were not replaced but were retained for study and exhibition, their place being taken by a cast of the original 1st molar to strengthen the jaw. The 2nd molar was not replaced, so that its socket remains empty.

The whole task was a very difficult and arduous one, and took us nearly a year to complete, owing to the fact that while the matrix was very hard and did not break easily, having no defined cleavage planes, the bone itself was not very hard but exceedingly friable. Fortunately the travertine was in no sense bound to the bone, and it was possible to secure a line of fracture along the surface where the bone and matrix touched; had this not been the case it would have been impossible

to clean it away. It seems probable that this line of cleavage was due to the fact that when the travertine was forming there was still a certain amount of organic material remaining in the bone, which was thus protected from the colloidal influence of the salts which bound together the sand grains of which the travertine matrix was formed.

When fully cleaned we found that we had the following specimens at our disposal:—First, a frontal bone which was almost complete, and to which there were attached a small fragment of the left parietal, and a tiny splinter of the nasal process of the left maxilla. Secondly, there was a left parietal which again, except for tiny fragments, was complete, preserving even the delicate denticulations along the line of the sagittal suture, but lacking the small piece of bone which was found attached to the frontal bone. The right temporal had survived. The squama is fairly complete, but the anterior part of it is broken. The apical portion of the petrous part is missing, but fully two-thirds are present. Only the right-half of the maxilla remained. Unfortunately the anterior aspect both in the alveolar region and the margin of the nasal aperture was much damaged, but the broken pieces can to a certain extent be replaced. The nasal process is missing. The upper aspect of the body appears to have broken more or less along the line of the maxillo-zygomatic suture, but exactly how the break occurred is obscure. The two milk molars are still *in situ*. The unerupted 2nd permanent molar has been lost. The remaining unerupted teeth are in their sockets in the alveolus.

The mandible, although broken in one or two places, all survives except the left ascending ramus and, unfortunately, the tip of the right coronoid process. The two right deciduous molars remain, and all the permanent teeth are in their sockets.

It can be shown that all these fragments belong to the same specimen. The frontal and parietal fit together, the small fragment of bone, already referred to and still adhering to the frontal, clinches the matter, and we were able to stick the two bones together and so obtain an endocranial cast. Unfortunately the orbital plates are too much damaged for reconstruction: indeed, little remains of them, so that apart from the internal aspect of one temporal, we could not reconstruct any part of the floor of the endocranial cavity.

The mandible and maxilla clearly fit together, although, as the remaining teeth are on opposite sides, we cannot exactly test the occlusion. There is, however, no doubt that they belong to the same individual. The condyloid process of the mandible fits into the glenoid fossa of the right temporal, again supporting the view that they belong to the same person.

We have thus two groups of bones, a calvarial portion and a facial portion, with a temporal bone. In order to be sure that these two groups belong to one another, it was necessary to make a mirror-image either of the left parietal or of the right temporal and to test the results. Both methods were tried and, on examination,

it was clear that the two groups of bones already defined belonged to the same skull. Unfortunately we have no means of linking up the maxilla and the frontal bone, and though, by placing the temporal bone and its reconstructed counterpart in position, a fairly good idea of the length of the face could be obtained, the actual reconstruction of the orbit and most of the nasal portion is necessarily conjectural. I have not attempted to reconstruct the occipital region, as I had nothing on which to base any work on that region.

No morphological plane remained by which the skull could be oriented. Rather than take a plane which would be dependent on a reconstruction which might afterwards prove to be unjustified, I have used for the brain-case the nasio-lambda line. As, however, we are not accustomed to look at a skull in which this line is made parallel to the horizon, I have inclined it, dipping the nasion so that the line is at 11° inclination to the horizon. The actual inclination of this line to the Frankfurt plane varies in different individuals, and the 11° is not chosen in order to suggest a definite approximation to the generally received plane, for it may or may not agree with the plane according to the specimen. It is merely an inclination which was found in practice to be useful. In making superpositions of outline drawings, the nasio-lambda lines have been placed on top of one another and the exact registration obtained on the central point of this line (Figs. 11-16). This method was adopted in order to avoid a series of conflicting lines one over the other, which results if the nasion or the lambda is taken as the point of registration.

In orienting the jaws, the alveolar line has been adopted, following Martin,¹ as with only two teeth any other line seemed impossible to define exactly.

Age.

When the fragments were originally found we had only portions of the skull-cap on which to base our estimate of age. Since that time the discovery of the jaws, whose evidence is somewhat conflicting when compared with the skull-cap, has made a fairly exact estimate possible.

The most important evidence is necessarily provided by the teeth. Although there are considerable differences in the time of eruption of the teeth in different individuals, the average age seems to be agreed upon. It may be accepted as a good rule that the 1st permanent molars erupt in the sixth year. We may take it, then, that the individual to whom this skull belonged was under six years old. All the 1st permanent molars, which are, however, well grown, and the opening is ready for them to erupt, have not yet pushed their way above the alveolar margin (Pl. IV). The teeth appear to be rather more developed than

¹ Lehrbuch, p. 484. "Dieselbe wird bestimmt durch die tiefsten Punkte der Alveolenränder der mittleren Incisiven und der letzten Molaren, gleichgültig, ob die Alveolarränder der übrigen Zähne dieser Linie entsprechen oder unter diesen Horizont sinken . . ."

is usual among children of five years old, but again they are certainly less so than in those who are known to have been six years old at the time of death. We must also remember that our evidence must be based to a large extent on the molars, and, as I shall show later, we are not dealing with ordinary molars but with the exceptionally developed "*taurodont*" teeth—that is to say, the pulp cavity is enlarged and extends to the base of the roots. Moreover, the teeth of Neanderthal man are much larger than is usual to-day. Making allowances, therefore, for possible differences of size, the evidence of the teeth suggests that the child was five years old.

The inferior aspect of the temporal (Pl. IV) is at first sight that of an extremely young child. Instead of the petrotympanic fissure being of the form normally seen in apes and man of this age, a large area of the surface of the petrosal is exposed, a character of the very young. The general architecture of this region, however, differs very considerably from that of modern man, or, indeed, of the apes to which it is perhaps more closely akin. This condition, however, seems no reason for revising the evidence provided by the teeth. The foramen in the tympanic plate, usually called the "foramen of Huscke," is considered to close in the fifth year, but as it sometimes persists throughout life the fact that it is open in this specimen is not of importance.

There do not appear to be many exact observations on the variation of the squamous suture in respect of age. If a series of human crania be examined it will be seen that the parietal bones and the squamous part of the temporal gradually grow towards one another until they meet. Then the inner tablet of the parietal extends under the temporal, while the outer tablet of the temporal grows over the parietal until the familiar suture is formed. In this specimen the two bones have met but have not overlapped. In most human skulls of five years old the overlapping occurs, but Professor Elliot Smith pointed out to me a five-year-old skull from the collection at University College, London, which possessed a type of suture exactly similar to that in the specimen before us. The form of the suture, therefore, does not negative our previous estimate.

Finally, the massive size of the cranium seems at first sight to be rather remarkable in one so young. But first it is extremely thin and frail, whereas adult Neanderthal skulls are so extremely massive that we may presume we are dealing with a young child. Secondly, Neanderthal skulls are usually larger than the average human skull to-day, but it is possible to find modern children who are almost, if not quite, as large in this respect. In the Pitt-Rivers collection at Farnham there is a Romano-British skull of identical tooth development, which though slightly narrower, is actually longer than this specimen. Thirdly, if we take large groups it is usually noticeable that individual skulls of considerable dimensions are not uncommon in the younger age-groups. Out of 825 male Maltese children whom I measured, 3 out of 75 who happened to be in their sixth year, had already a head-length equal to

the average length of boys of fifteen, and actually greater than the average adult female. The size, therefore, is not incompatible with the age.

It is, however, natural to compare the Devil's Tower skull with the La Quina child, which is probably about three years older. The latter is considerably smaller, especially in the breadth of the head, the actual figures being:—*Nasion to lambda*.—Devil's Tower, 167 mm. La Quina, 163 mm. *Greatest breadth*.—Devil's Tower, 150 mm. La Quina, 131 mm. (See Figs. 11 and 14.) The latter is much less massive in every way, and it seems not unreasonable to suggest that it is feminine, which would account for the differences in size if, as seems probable, the Devil's Tower is masculine.

I suggest, therefore, on the basis of the evidence discussed above, that we are dealing with a boy of about five years of age.

Racial Affinities.

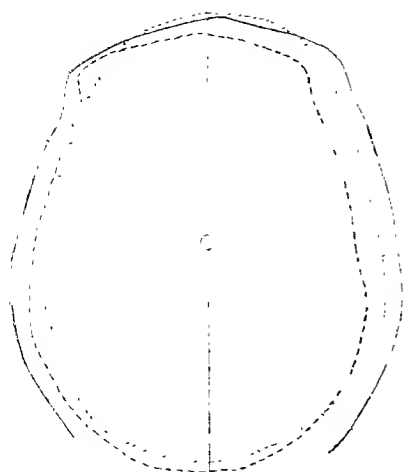
So far we have always associated Neanderthal man with the Mousterian culture: La Chapelle, both the La Quina skulls, the Galilee fragments, and the specimen before us, all belong to the same phase of culture within the Mousterian.

Its consideration naturally falls into three parts: the brain-case, represented by the frontal, one parietal, and the squamous part of one temporal: the base of the skull, of which only the temporal has survived: and the face, jaws, and dentition.

Viewed from above the calvarium has a strikingly broad appearance (see Pl. III). From glabella to lambda it is 169 mm., five millimetres longer than the La Quina child, although it probably falls far short of the complete glabello-occipital length. We have, however, insufficient evidence to estimate exactly in Neanderthal man the difference between the two measurements. In the Neanderthal calvarium itself the difference is 10 mm., a small amount, considering the great development of the supraorbital region of that skull; in both the Forbes' Quarry and the La Quina child the difference is 13 mm. In Spy No. 1 the difference, owing to the heavy massing of bone in the glabellar region, is 20 mm.

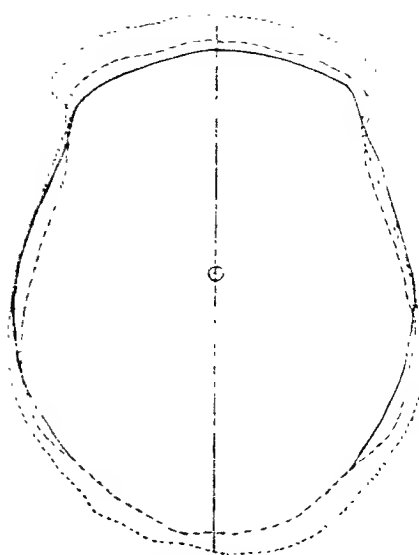
While not wishing to lay undue stress on these figures, it would seem reasonable to suggest that the glabello-occipital length of the specimen now under consideration lay between 179 mm. and 189 mm. (glabello-lambda = $169 \mp 10-20$ mm.), and probably nearer half-way between these limits, that is, 184 ± 5 mm. On the basis of the normal growth this would give a figure which is within the limits of adult Neanderthal male skulls, according to the table given by Boule (*op. cit.*, p. 32). La Chapelle has a glabello-occipital length of 208 mm., while at the other extreme Spy No. 2 only reaches 198 mm.

The greatest width is naturally a somewhat conjectural measurement; to guide us we have one parietal only and the frontal bone. In reconstructing the specimen I have been compelled to make it symmetrical, a somewhat unlikely thing.



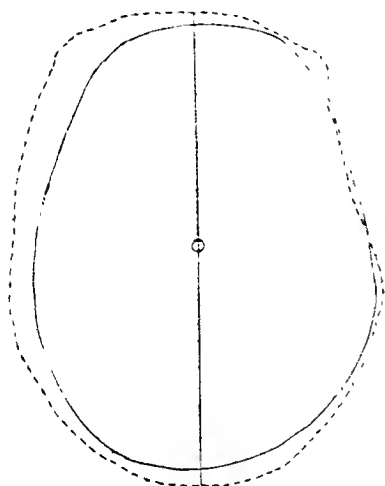
—DEVIL'S TOWER
 ---LA QUINA
 ····EUROPEAN, 6 YEARS

FIG. 11.



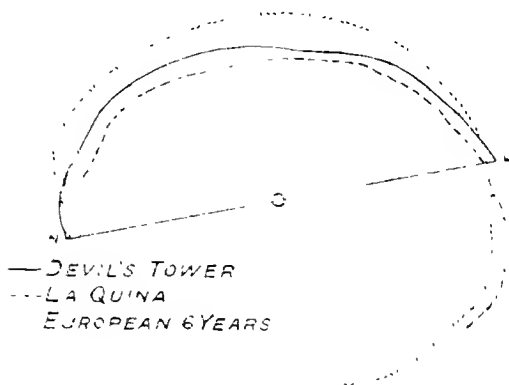
—DEVIL'S TOWER
 ---FORBES' QUARRY
 ····LA CHAPELLE-AUX-SAINTS

FIG. 12.



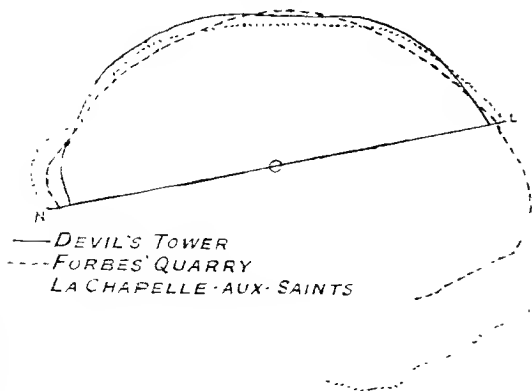
—EUROPEAN CHILD, 6 YRS.
 ---" ADULT

FIG. 13.



—DEVIL'S TOWER
 ---LA QUINA
 ····EUROPEAN 6 YEARS

FIG. 14.



—DEVIL'S TOWER
 ---FORBES' QUARRY
 ····LA CHAPELLE-AUX-SAINTS

FIG. 15.



—EUROPEAN CHILD 6 YRS
 ---" ADULT

FIG. 16.

FIGS. 11, 12, 14, 15.—TRACING OF THE DEVIL'S TOWER CRANIUM SUPERIMPOSED ON TRACINGS OF OTHER CRANIA.
 THE METHOD EMPLOYED IN MAKING THE SUPERIMPOSITIONS IS DESCRIBED IN THE TEXT (p. 60).
 FIGS. 13 AND 16.—TRACINGS OF EUROPEAN CRANIA FOR COMPARISON. 13.

We do not know whether the remaining side was the most or the least prominent. If the skull was symmetrical the width would have been 150 mm. (this figure has been obtained on two reconstructions made independently (*see* Fig. 11)). It probably represents an average value. This is a very large proportional breadth. It is over 20 mm. greater than the La Quina child, and only 6 mm. less than the La Chapelle adult, which is the largest of the Neanderthal skulls. If the growth in breadth proceeded at the same pace as in modern man, had the Devil's Tower child lived he would have had a head with a breadth of about 165 mm. more or less. This estimated figure is very large, but not beyond the possible range of variation of Neanderthal man.

The ratio of breadth to length gives us the cephalic index. On the estimate given above the index would be 81.5 with a lower range of 79 and a corresponding upper range. This is a very unusual figure for a Neanderthal skull. It is true that a reconstructed Krapina specimen is brachycephalic, but Boule pours scorn on this particular specimen, which is practically an artifact and not a skull. I am, however, assured by Dr. Hrdlička, who has examined the specimens, which I have never seen, that, quite apart from any reconstructions, the bases from Krapina which remain show undoubted evidence of brachycephaly. The La Quina child has an index of 77, and, according to Schwalbe, the cerebral index, taken on the endocranial cast, is 78.3. Further, in our specimen the absence of big brow ridges clearly makes all the difference to the index. We can probably, therefore, account for the brachycephaly to a large extent by considering the age of the specimen, and if it is slightly more round-headed than would be expected, even at this age, on the basis of our previous knowledge of Neanderthal man, this slightly greater brachycephaly is well within the possible range of variation. A further point in this connection deserves consideration. The muscular markings are singularly ill developed, and it might be argued that possibly with the development of the musculature of the mandible the growth of the breadth of the calvarium would be less rapid. Boule has, however, shown that in spite of the great depth of the temporal fossa there are scarcely any temporal crests on the La Chapelle-aux-Saints skull. In any case the further development of the muscles may have a compressing effect and prevent a growth corresponding to that of a modern child, in which case the adult would not necessarily have been brachycephalic.

Considerable stress has been laid on the sagittal curve of the skull (*see* Fig. 14). In this case the curve can hardly be compared with that of adults, owing to the changes which take place in childhood. The form of the forehead shows the prominence of infancy, while the low character of the vault is consistent with the platycephaly of Neanderthal man. This flattening is especially noticeable in the region of the vertex. The form of the curve, although larger, shows that our specimen corresponds exactly to that of the La Quina child, and differs markedly from that of a modern child of the same age.

The relationship of the two parts of the sagittal curve shows very considerable variation in Neanderthal man, and is probably not a feature of any racial importance. The figures from which a comparison can be made are as follows:—

Measurement.	La Chapelle.	Neanderthal.	Spy No. 1.	Spy No. 2.	La Quina.	La Quina child.	Devil's Tower.
Nasio-bregma ...	121	133	115	124	114	105	116
Bregma-lambda ...	121	119	120	120	110	112	110
Index ...	100	89.4	104.3	96.7	96.4	106.6	94.8

The general contours of the brain-case, viewed both sagittally and transversely, are very full—much fuller than is usual in Neanderthal skulls (*see* Fig. 15). This condition may be due either to age or may possibly be an individual variation. The discussion, however, of these contours belongs especially to the study of the endocranial form, and has, therefore, been left to the chapter written by Professor Elliot Smith.

Frontal Bone.

The frontal bone (*see* Pl. III), like the parietal, is extremely slenderly built, having an average thickness of about 4 mm. Viewed from the front, this frontal bone presents characters which seem at first sight entirely unlike those which are usually associated with Neanderthal man. Sir Arthur Keith has drawn attention to the importance of the contrast between the external angular width of a skull (taken from one external angular process to the other) and the maximum frontal width. In the Galilee skull the external angular width is much greater: in the Forbes' Quarry skull the maximum frontal is the greater by 2 mm.: the opposite is the case in La Chapelle: in Neanderthal it is equal. In Australian aborigines, taking an average of 10 skulls, the maximum frontal was greater by a fraction than the external angular width. In most modern races the difference is considerable. In our specimen the external angular process is developed to a very slight degree while the frontal bone spreads backwards and upwards, giving the supraorbital region, from this point of view, a singularly modern appearance (*see* Fig. 11). But there are features in the skull which show that this is probably merely an infantile character which will later disappear. The muscular development is at present very slight, and although there are signs that subsequently the temporal fossa would have attained a great depth, at present it is but slightly marked, and the great splay of the external angular process which, by its marked projection, forms a bony recess, into which in adult Neanderthal man the temporal muscle fits, is entirely absent, and there is only a small difference in measurement between the minimum frontal diameter and the measurement across the external angular process, so small, in fact, that instead of

an outward splay of the process the external surfaces of the two processes are parallel.

The ratio of the minimum frontal diameter to the maximum frontal diameter, the transverse frontal index, is often a useful measure of the form of the frontal bone. Unfortunately many anthropologists prefer to take the stephanic width, which I have not been able to do, owing to the absence of muscular markings. Making allowance, however, for a difference in technique, it is clear that the index of 81.6 in this specimen is lower than in the average Neanderthal man. This difference is due to the development of the anterior region: proportionately, however, this region is hardly more developed than in the La Quina child. We may therefore reasonably suggest that the difference in the value of the index is due to age.

Frontal Diameter.	Devil's Tower.	La Quina child.	La Chapelle.	Romano-British, five years old.
Minimum ...	102	88	109	89
Maximum ...	125	105	122	110

The very high values of the absolute measurements of our specimen are somewhat remarkable. In the frontal region, almost more than anywhere else, is the brain-case of unusual size. I have already argued that most of the other measurements, although big, are not outside the normal range of variation. Here, however, we seem to be dealing with figures which suggest an abnormal condition. The internal markings are too clear to allow the hypothesis that some form of disease was the cause of this unusual size,¹ and it seems inevitable to suppose that we are dealing with a healthy individual with pronounced frontal development. After all, at present, our knowledge of Neanderthal man is so limited that we have no means of judging the variations in calvarial size and form.

Viewed in *norma lateralis*, our specimen differs in many respects from a modern child, while possessing other features which occur in modern children (*see* Fig. 14). The glabellar region is poorly developed, but if compared with the tracing of a modern child, the distinction is at once apparent. In the modern European child the glabella is not noticeable when viewed from the side, the most prominent region being at the level of the frontal eminences. In our specimen, on the other hand, the glabellar region is well marked even at this early age, and is more prominent, although of the same form as the La Quina child. Above the glabella in both specimens the forehead slopes backwards. Fig. 16 shows, side by side, the changes which take place in a European of to-day from infancy to manhood, and the similar changes which took

¹ But *see* p. 86, where Professor Elliot Smith has discussed this point in describing the endocranial cast.

place in Neanderthal man. It is clear that we are dealing with two parallel processes. The curve of the frontal bone may be measured either by comparing the frontal curve with the frontal arc—on the whole an unsatisfactory method, especially in Neanderthal man—or by measuring the internal angle, that is, the apex of a triangle whose base is from the foramen cæcum to the internal bregma, and whose apex is the highest point of the curve of the frontal bone. In Neanderthal man this angle is usually very big, owing to the low slope of the forehead, and is as much as 151° in the Spy skull and 139° in the Neanderthal skull. In our specimen the angle is 122° . Such an angle of frontal curvature is well within the range of the human child, the average figures ranging from 122° to 126° . This somewhat startling degree of resemblance is probably to be put down to the score of age rather than racial affinities. The contrast between a European outline and the outline of our specimen shows that the measurement suggests a resemblance which the actual curve does not reveal. Owing to the rounded form of the glabella I have not been successful in applying the ordinary measurements.

Morphologically, then, the frontal bone possesses certain characters which are undoubtedly unusual. In general form its contours, though different from those of adult Neanderthal man, agree closely with those of the La Quina child, and we may consider them to represent a stage in development. In some respects the forehead is already slightly more developed than the older La Quina child, but as the latter is probably a female, it would be expected that such a development should occur. The development of the forehead seems to be parallel in modern and Neanderthal man. In the apes the brow-ridges are already well marked at the time of the eruption of the 1st molar. It would appear, however, that in these animals, owing to small size of the brain and the consequent retreating forehead, a massive bony framework round the orbits is an essential part of the architecture of the skull. In our specimen, however, the frontal region of the brain is highly developed and, in order to accommodate the brain, the forehead is upright like that of children of our own race. The necessity, therefore, for a massive support does not exist. As adult life, however, approaches, the growth of the jaws is so great that a supporting structure is necessary. In the young chimpanzee, even when only the first permanent molars have erupted, the temporal fossæ are very deep, and the external angular processes are projecting. But even at this early age, while the jaws are still in almost an infantile stage of development, they are very massive in relation to the skull. In our specimen, however, the dominant feature of the skull is not the jaws but the brain-case, and especially the frontal part of the brain-case. In a European child exactly the same condition is to be noted, even to a greater degree. In the Devil's Tower skull we have the advantage of being able to gauge approximately the size of both the deciduous and the permanent dentition, and there is no reason to doubt that the permanent dentition is of the normal massive Neanderthal type. It seems probable, therefore, that with the eruption of the teeth the facial region would develop and

bring about the massiveness in the orbital region characteristic of that type.' But the deciduous teeth, although large absolutely, are relatively small, whereas the brain cavity is both absolutely and relatively large. The architecture of the facial region is, therefore, necessarily closer to the modern type of skull where the jaws are both absolutely and relatively small and the brain-case large than the adult skull, in which the permanent dentition is large. It does not seem unjust under these circumstances to suggest that the apparent convergence of the frontal region towards that of modern man may be largely the result of age. On the other hand, the greater breadth and fullness do appear to be beyond the normal variation. There can be no doubt that this increased breadth is due to the size of the brain for which the calvarium forms an envelope. Given such a large development of the brain cavity in relation to the face, we should naturally get a type of frontal architecture such as we see in this specimen. Emphasis must be laid on the point that we are dealing with the form of superficial structures, to which morphological importance must not be attached for they are secondary developments resulting necessarily from the growth of internal structures. In our specimen we have clear evidence of a brain which is unusually large for Neanderthal man. Under such circumstances it must follow that we do not find the constricted and sloping forehead which hitherto we have looked on as typical of Neanderthal skulls.

Left Parietal Bone.

Most of the important features of the parietal bone have already been mentioned in discussing the form of the brain-case. There are, however, certain characters which deserve a special consideration. In general form the parietal is flattened on the top but well rounded longitudinally, exhibiting a uniformly "well-filled appearance." The parietal eminences can hardly be distinguished. This is no doubt due to the proportionally great development of the endocranial cavity which has already been commented on in describing the frontal bone. Although the breadth of the parietal is unusually large, it is just possible that it may be within the normal limits of variation, although here also, unless we presume a slower rate of growth in this region than in modern man, we are certainly dealing with an unusual specimen. While preserving the flattening on the top, the growth of the brain appears to have secured accommodation for itself by spreading out transversely, a feature which is usually associated in modern skulls with a broad cranial base, of which here, unfortunately, we have no remains.

Professor Arthur Thomson has suggested that the growth of the temporal muscles exercises considerable influence on shape of the sides of the brain-case. In this case the muscular markings are entirely absent; but first we are dealing with a very young specimen whose jaws have not yet attained a growth proportionate in any way to the growth of the cerebral part of the skull and, secondly, even in Neanderthal adults, the temporal markings are poorly developed. Further, in the

last section. I have already shown that the temporal fossa, so deep in adult Neanderthal man, is in this specimen but feebly developed. Clearly, then, at this stage the muscular pull can have begun to exercise little, if any, influence, and the spreading nature of the parietal is due solely to the pressure from within. Under such circumstances, perhaps, the great breadth is less to be wondered at than it would be if it occurred later. Our estimate, therefore, of the general form of the parietal will be influenced by a consideration of the endocranial cavity, making proper allowances for the influence of age in estimating its relative proportions. The absence of parietal eminences, normally a well-marked Neanderthal characteristic, becomes easily explicable, and may be put down to the great internal growth of the brain, while the spreading nature of the bone is also accounted for by the same cause, while admitting that later possibly the development of the jaw muscles might have exerted an influence on this form, although such a consideration must necessarily remain doubtful.

Some anatomists have laid considerable stress on the relative proportions of the sagittal and the temporal borders of the parietal. In the apes the frontal bone projects backwards above in a wedge-shaped form, so that the sagittal border is much reduced and the temporal border of the parietal is the larger of the two, while as a natural consequence the frontal border is relatively greater than the occipital. Boule has, however, shown that the stress laid on this feature is exaggerated. In the Neanderthal skull the inferior border (temporal -- sphenoidal) is said to be longer, but Boule expresses a guarded scepticism on the matter.¹ In Spy No. 2, however, it is shorter, and Boule has shown that it is also the shorter in the La Chapelle skull. In our specimen the relative proportions of the two borders is very close to that of the La Chapelle skull. Clearly, then, this feature has not the importance which was attached to it before the work of Boule showed how variable it may be.

Considerable significance should probably be attached to the form of the arcade of the joint between the parietal and temporal squama (see Pl. III). In the apes and in new-born human infants the temporo-parietal squama is only arched to a very small extent, while in most modern skulls the arching is very marked. Topinard was inclined to think that this pronounced arching was characteristic of the most highly developed human skulls. In Neanderthal man the arching is not marked. There is, however, a very considerable difference in this arch in the skulls of modern man. The most arched form occurs in European skulls, whereas it is very flat in Bushman skulls, and in some Australians the arch is very slightly, if at all, marked. But the absence of an arch is by no means limited to such exotic races. It occurs, for instance, in ancient skulls excavated at Kish in Mesopotamia. In our specimen the arch is well marked, although the nature of the suture, which has been discussed

¹ It is somewhat difficult to examine this point on casts, but from the casts in this Department there seems no reasonable doubt that in the Neanderthal skull the inferior border is actually the longer.

on p. 61. shows that the temporal squama was by no means fully developed. Such a development of the arch is certainly a human characteristic: but, since it does not occur on all modern skulls, even though its absence has been noted hitherto on Neanderthal skulls, it would hardly appear to be a definite Neanderthal character as has been hitherto assumed, unless we suppose that our specimen in this feature shows some convergence with the human species. As, however, the temporal bone is one of the most characteristic of Neanderthal bones such a supposition is hardly tenable. I am at a loss to understand the morphological significance of this variation, but suggest tentatively as follows:—

All the skulls which I have examined which show an absence of the arch are long, "ill-filled" specimens, whereas the arch is especially well marked in rounded, well-filled European skulls. I would suggest, therefore, that in the long, ill-filled Neanderthal skulls the form of the joint is associated with the architecture of the skull, and that in this specimen, with its undoubtedly high cranial capacity, a type of joint occurs which is also to be found in those modern skulls which possess a similar character. The matter then ceases to be a racial character, but becomes a secondary effect of other causes dominating the architecture of the skull.

Temporal Bone.

In describing the temporal bone (Pl. IV), it is most convenient to divide the subject into its three constituent parts—the squamous part, the petromastoid, and the tympanic part. Of these all are represented, but parts of the squama have disappeared. In the La Quina skull the anterior portion of the temporal squama is most developed, as in the young chimpanzee: in a modern child's skull it is the central portion which has the greatest development. In the Devil's Tower skull a somewhat intermediate position is reached. As far as can be judged from the fragments of the squama and the temporal border of the parietal, the central portion certainly rose into that curve which is usually pronounced in modern man. In this respect the Devil's Tower skull shows characters of an intermediate position as in other bones. There is no thinning of the edge of the bone. The markings on the internal aspect are fairly well defined, but not as strongly as on many modern infants' skulls.

It is not possible to be certain of the exact angle at which the bone was set, but the squama appears to be deflected outwards more than is usual, there being considerable hollowing of the internal aspect.

The basal aspect of the bone presents morphological features of the greatest importance. Only the root of the zygomatic process remains. It is of considerable size, measuring 15 mm. long and 6 mm. deep, corresponding in form, though larger in size, to that of La Quina, and differing from that of an infant chimpanzee, where the root is very long and narrow. As in both human infants and young apes, the articular surface extends into the root of the zygomatic process. The glenoid fossa is extremely

shallow and anteriorly has no definite boundary, the articular eminence being entirely absent. The posterior aspect of the fossa is bounded by a well-marked crest 11 mm. long and 3 mm. broad, corresponding to the post-glenoid tubercle of human anatomy. Internally there are the remains of a spine on the temporal bone itself; no doubt this was continuous with the spine of the sphenoid, which in man normally forms the boundary. In between the lips of the petrotympanic fissure there is a broad band of the petrosal exposed externally, which, together with the post-glenoid process, entirely separates the glenoid fossa from the tympanic plate.

In many respects this is the most typical Neanderthaloid region of the skull. The shallowness of the mandibular fossa is part of the common heritage of the infant of all species akin to man, and it is only in later life among certain groups of men that the deep fossa is developed. As Sir Francis Knowles¹ has shown, the shallow fossa persists in certain primitive peoples, such as the Eskimo, who are in the habit of moving their jaws laterally as well as up and down. Sir Arthur Keith has emphasized the point that morphologically the fossa is hollowed out, and the articular eminence remains, not as a growth, but as an uneroded portion. The nature of the petrotympanic fissure is apparently an infantile survival, since, generally as far as I have been able to ascertain, the arrangement in the apes at six years old does not materially differ from the arrangement in man. Among adults the post-glenoid process appears to be perhaps one of the clearest indications of the Neanderthal type amongst whom this feature is more close to the arrangement in the apes than to modern man. In the Devil's Tower specimen the process is much larger than in a chimpanzee of the same age. Unfortunately we have few skulls of infants of such races as Bushmen or Australians with which a comparison could be made and an opinion formed. It will be noticed that where in man the mandibular fossa is shallow this process is always developed to a greater extent, but the different arrangement of the tympanic plate renders unnecessary so firm a barrier to guard against the mandible slipping backwards.

The tympanic region also differs considerably from that of modern man. The external acoustic meatus, instead of being elliptical is more rounded in section, and the tympanic ring is rounded and extremely thick. In the apes the whole region is penthouse shaped, whereas in man the basal aspect is prolonged into a high sharp crest. In this specimen a slight fragment of bone has been lost, but it is clear that the arrangement, as is usual in Neanderthal man, follows the penthouse type. The tympanic plate is very small, and the foramen of Huscke, an infantile characteristic, is large. The external edge of the plate is deeply set, an infantile character, but one that appears usual in Neanderthal man, and may be correlated with the size of the post-glenoid tubercle. There is a well-marked tubercle mesially, corresponding to a spine which sometimes occurs in modern man. In relation to the other parts of the temporal bone, the centre of the external acoustic meatus more or less

¹ Geol. Survey of Canada, Bull. 9.

corresponds to a line cutting the zygomatic process in half longitudinally: this is characteristic of Neanderthal man, but can be observed in some specimens of modern man.

The mastoid region presents certain morphological features which are difficult to explain. In common with the apes, Neanderthal man possesses a small mastoid process: in the young chimpanzee the process is represented by a tiny tubercle. The process is poorly developed in human infants, but is relatively smaller in this specimen. Apart from the function of the mastoid cells, it would appear that the process has a muscular function. The difficulties connected with this question are fully discussed by Boule. Various attempts have been made to obtain a measurement of the mastoid process, but they have not been entirely successful as it is difficult to define the boundaries exactly. An estimate, however, which, although possibly including other features, permits of accurate determination, is to measure the length of the extremity from the bottom of the mastoid notch. In a chimpanzee of six years of age the process is only just recognizable and is about 1 mm. high; in the Devil's Tower skull it is approximately 2 mm.; whereas in modern infants it may be as large as 4-5 mm.

The small size of the mastoid is characteristic of Neanderthal man, even in the adult, who here approaches the apes, but it is also an infantile character in modern man. We cannot therefore definitely say whether in this particular case we are dealing with what is merely an infantile character, or one that is associated with the Neanderthal type. The mastoid notch is very reduced, and is broad. The form of the notch is associated, as Boule has pointed out, with the form of the process, and where, as in infant apes, the process is almost effaced the notch is equally insignificant.

Martin reports that in the La Quina child there is no groove for the occipital artery. In this specimen the surface here is somewhat broken, but anteriorly a little remains showing undoubted traces of the groove. In the young ape's skull which I have used for comparison I can find no certain traces of the groove. In human infants the groove is often well marked, although sometimes hardly apparent, but it is an insignificant point to which little reliance can be attached.

A break has occurred at the mastoid foramen, so I am uncertain about this feature. There is certainly an absence of the small vascular foramina which occur in most modern infants and in adult and infant apes.

Basically the relations of the petromastoid have already been referred to. A large proportion of the petromastoid separates the lips of the glaserian fissure, terminating internally in a well-marked spine. This appears to be the remains of an infantile condition, presumably surviving at a later age than is usual, as this condition does not appear to persist in other Neanderthal skulls. It has naturally a considerable effect on the form of the mandibular fossa.

Viewed from the inside, the petrous part of the temporal bone is extremely massive, with a broad upper surface and a well-marked arcuate eminence. As in the La Quina child, there is no trace of any groove for the superior petrosal sinus. Martin considers the point of importance in relation to the blood supply of the brain: this point must therefore be left to the discussion of the endocranial cast. The groove for the sigmoid sinus is deeper and narrower than is usually the case in modern man of the same age.

The temporal bone, therefore, presents characters which conform to the type of Neanderthal man. Apart from the arched form of the squama—which can only be inferred from the suture, as the arch itself is missing—it presents in everything characters in agreement with a true Neanderthal type. The curvature of the squama can hardly be ascribed to age alone, for the infant chimpanzee has a long straight form which is characteristic alike of both the adult ape and Neanderthal man. The unusual form of the petrotympanic fissure is of an infantile character. The remainder of the anatomical features noted are those of Neanderthal man, but they can to a large extent be explained functionally in relation to the use of the jaws made by Neanderthal man.

Maxilla.

Only the right-half of the maxilla survives (*see* Pl. IV), and that not in a complete condition: the anterior region is badly damaged and was much scaled off during excavation. Many of the small fragments, however, have survived, and can be replaced with a greater or lesser degree of certainty. The break between the two halves of the maxilla is along the median line, and that between the maxilla and the zygomatic bone is along the suture. Two deciduous teeth, the molars, are still *in situ*: the remainder are lost. The unerupted 2nd permanent molar is lost, but the germs of the other permanent teeth have been preserved. The palate is more or less completely preserved for 2 cm. from the internal side of the socket of the unerupted incisor. At this point there is a diagonal break, and a large fragment of the posterior part of the palate is missing.

The description of the bone falls conveniently into three parts—the nasal, the jugal, and the palatal parts, respectively.

It is impossible to do more than conjecture the height of the nasal aperture and its breadth is equally uncertain. The floor of the aperture appears to be sharply defined and separated from the incisor region. If this interpretation be correct—and such fragments as we have appear to justify it—it is evident that this specimen differs very considerably from the apes, and from modern negroid and other platyrrhine races who possess a simian groove and a poorly defined margin to the pyriform aperture. It accords, however, with what has been observed in Neanderthal man. Boule describes this sharp margin as being ultra-human: it is, however,

specially developed, although possibly to a lesser degree, only in the leptorrhine races of man alone where it is associated with a considerably reduced face. The indeterminate margin is found where there is a considerable degree of alveolar prognathism. But in Neanderthal man the whole architecture of the face is different, and "complete" prognathism is the rule, whereas in the apes there is both alveolar and "complete" prognathism. We are dealing here, as always in the study of human skulls, with a part of a working mechanism: it would appear, therefore, that Boule's descriptive term of "ultra-human" is somewhat unfortunate, because it may so easily be led to carry a connotation beyond that which Boule wished to apply to it. It undoubtedly represents a specialized condition, imposed by the rest of the bony architecture of the face. Such parts of the nasal process of the maxilla as survive suggest that this region projected forward with a muzzle-like appearance, being directed forwards at a much steeper angle than in modern skulls. The whole region is, however, so fragmentary that it seems hazardous to discuss its detailed anatomy.

The jugal region shows even more clearly the distinction between this specimen and, say, a modern Australian aboriginal. The zygomatic bones are entirely lost, but seen in *norma basilaris*, the maxilla presents in this region a form entirely comparable with the Forbes' Quarry skull. The zygomatic process is directed outwards and backwards. There is no canine fossa, and the position of the frontozygomatic suture is probably associated, as in other specimens of Neanderthal man, with full but retreating cheek-bones. Instead of being deeply hollowed, as is frequently the case in modern man, the anterior surface of the maxilla is only slightly concave.

Boule has pointed out that there is no canine fossa among the leiotrichous races of man. Amongst them, however, the anterior surface of the maxilla is hollowed. In this connection I have examined a series of infant skulls from Peru. The adult Peruvian skulls in the collection certainly show an absence of the canine fossa, but among those specimens whose permanent dentition is as yet unerupted the fossa is always present. How far this is general among the leiotrichous races I cannot say. Boule suggests that this absence of the canine fossa and the backward slope of the jugal region of the maxilla is one of the most important morphological features of Neanderthal man. He believes that it is not necessarily pithecoïd as the canine fossa is absent in chimpanzee and marked in the gorilla and the orang. It would seem, however, that the differences observed are largely accounted for by the size of the teeth. The configuration of the jaw is a secondary matter, and its shape is determined by the underlying structures.

The infraorbital foramen in the fragment under consideration is some distance from the orbital margin, as in the apes and in the La Chapelle skull. The maxillary sinus is very large and the face must have been muzzle-like in appearance.

Although the proportions are different, the actual size of the facial portion of the maxilla is not much greater than that of a six-year-old child. It is only slightly broader in its transverse diameter, and its massiveness is entirely due to the extension of the maxillary sinus. In the discussion of the mandible which follows, attention will be drawn to the fact that the large measurements in the reconstructed fragments occur only in those parts concerned with the envelope of the brain; elsewhere the dimensions are well within the range of a modern child, notwithstanding the teeth, which are already beginning to develop within the jaws.

Owing to its condition I found it hardly possible to take any exact measurements of the palate which anteriorly is broken along the middle palatine suture. The palate shows no trace of a premaxillary suture. The anterior palatine canal appears to be represented by a small depression only, and may even have been absent. The roof of the palate is extremely thick, varying from about 1 mm. to over 2 mm. In the alveolar region the slope is very gradual, and the full depth of the palate, which is about 6 mm., is not attained until the level between the 1st and 2nd premolar is reached. This gradual slope of the palate is a feature which occurs both in Neanderthal and in modern primitive man. The palate is of considerable breadth: this point is characteristic of Neanderthal man. In the modern primitive races the increase in size of the palate is usually associated with an increase in length. Among the Neanderthal skulls the immensely large area of the palate is the product, not only of considerable length, but also of a great breadth. In fact, in some ways many palates of primitive men to-day look more like the palates of apes than do those of Neanderthal man. In this specimen we have the palate at a particularly critical stage of development, just as the first permanent molars are erupting, and it is, therefore, hardly possible to say with any certainty what the ultimate form was going to be: but its present stage certainly suggests that ultimately it would have had the great breadth and large dimensions of the Neanderthal palate.

The Mandible.

The mandible is fairly complete (see Pls. IV and V). The right side is damaged at the neck of the condyloid process and has lost the tip of the coronoid process. There is an old break on the left side across the socket of the 2nd molar, and the left ascending ramus has disappeared. Two deciduous molars are in position on the left side, the rest of the deciduous teeth having been lost since death. The first two permanent molars on this, the left, side were visible slightly below the alveolar border. As the jaw was broken in ancient times across the alveolus of the 1st molar (the tooth itself was intact), in uniting the fragments a cast of the tooth has been substituted, while the tooth itself, together with the imperfectly developed 2nd permanent molar, has been reserved for independent study.

The jaw, although not of great size, is extremely massive (see Figs. 17 and 18). The slope of the anterior border of the ascending ramus is practically the same as the slope of this part of the mandible of a six-year-old European child, but owing to the great development of the angle of the jaw the slope of the posterior border is much less pronounced. In the six-year-old modern specimen both borders are parallel. In a six-year-old chimpanzee there is little slope, but, both anterior and posterior borders are concave. The sigmoid notch is shallow, but owing to the loss of the tip of the coronoid process, the shallowness is exaggerated in the drawing.

The coronoid process is very low, with a large transverse diameter. Owing to its damaged condition it is not possible to discuss the detailed morphology of the condyle. The main axis is inclined inwards: in La Chapelle the inclination is outwards, in Mauer the position is intermediate. According to the figures given by Boule, among the lower races 41 per cent. have an inclination inwards and 19 per cent. outwards, while amongst the higher races 42 per cent. have the inclination outwards. The smaller axis is inclined backwards, the general arrangement being essentially infantile.

The anterior part of the ascending ramus is singularly stout and massive and, although somewhat broken, enough remains of the region where the temporal muscle was inserted to suggest that even at this early age that muscle was well developed. This is of interest, as it has been shown above that the temporal fossa seemed to be almost negligible in its size, and neither the superior nor the inferior temporal lines could be traced on the calvarium.

Although the outer surface of the ascending ramus has a considerable superficial area it is smooth, and the insertion of the masseter muscle is not marked by any of the oblique curved ridges which are found on those human jaws in which the masseter is well developed. The angle of the jaw is slightly inverted and is truncated. This smoothness of the outer surface and the truncation of the angle occur in the apes and in Neanderthal man, and are not uncommon in modern man, although in the latter the non-truncated form of angle is more common. The explanation appears to lie in the relative development of the masseter and of the *pterygoideus internus*. In our specimen the former is relatively poorly developed, whereas the latter, as will be described later, appears to have been relatively massive. The truncated form of the angle must therefore be considered as of a functional nature, and not as representing a morphological difference.

The lower margin of the horizontal ramus recalls in many respects the Mauer jaw, but there is so much variation in this region that little attention can be paid to such a resemblance. It is markedly concave, the top ends of the concavity being formed by the gonion, and a well-marked tubercle on the inferior border of the body of the mandible. This tubercle (see Pl. IV, D) does not coincide with the mental tubercle, but forms the end of a rounded prominence running forwards and downwards from

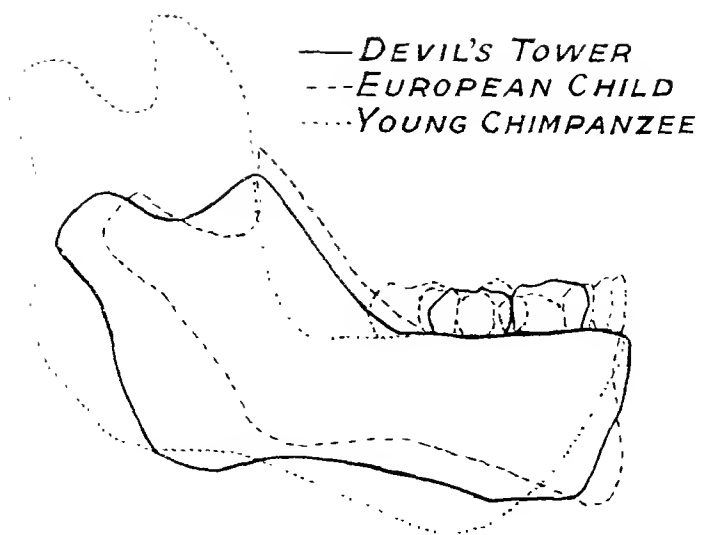


FIG. 17.

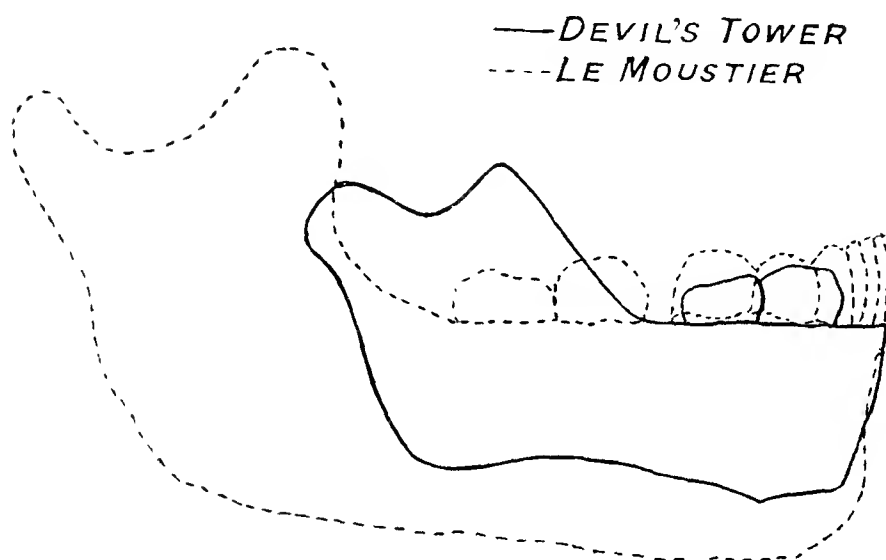


FIG. 18.

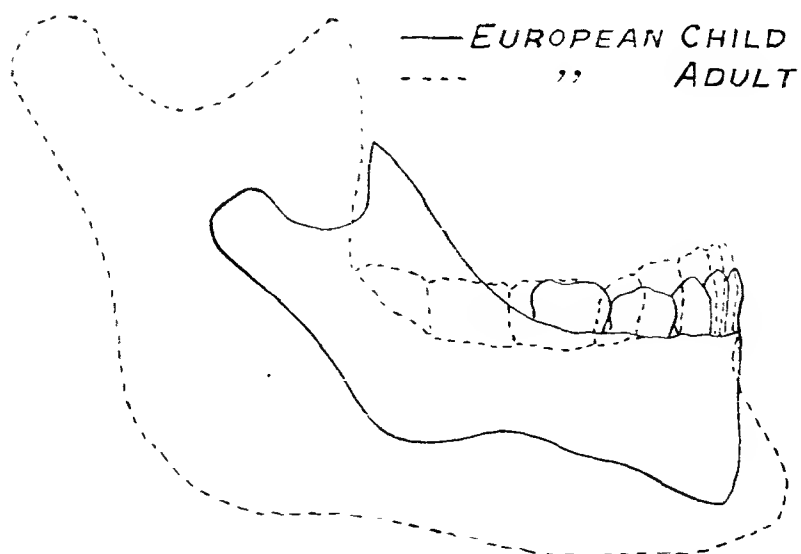


FIG. 19.

FIGS. 17 AND 18.—DEVIL'S TOWER MANDIBLE COMPARED WITH OTHERS (NATURAL SIZE).
 FIG. 19.—MANDIBLES OF EUROPEAN ADULT AND CHILD OF 6 YEARS, SHOWING GROWTH, FOR
 COMPARISON WITH FIG. 18. (NATURAL SIZE.)

the anterior border of the ascending ramus. The exact function of this tubercle, which is slightly more marked on the right than on the left, is not apparent. It occurs occasionally on modern jaws, and I have observed it in our collection on an Amerind and on a Romano-Briton. It is difficult to judge from the cast, but it appears to be slightly developed on the Mauer jaw. Professor Thomson has suggested to me that in some jaws at least it may serve for the attachment of the platysma. It is remarkable that it should be so well developed on a young mandible, and the specimens which I have seen have always been the jaws of extremely muscular males.

Continuing the description of the lateral surface of the body of the mandible: on the left side there are four mental foramina: three are between 1 mm. and 1.5 mm. in their longest diameter, the fourth measuring about .75 mm. They are arranged as follows:—The lowest is exactly below the contact surface of the two deciduous molars, 15 mm. below the alveolar border and 4 mm. above the lower border of the horizontal ramus. Three millimetres above this foramen are two others of slightly larger dimensions, one lying slightly anterior and the other slightly posterior to the lower foramen. These two upper foramina form a continuous channel, being separated from one another by a thin bridge of bone 1.5 mm. from before backwards. The fourth foramen, which is much smaller than the other three, lies 1.5 mm. above the two last-mentioned, and is slightly anterior to a line drawn from the contact surface of the two deciduous molars and the centre of the lowest foramen.

On the right side there is a large foramen 2.5 mm. in diameter, its centre being 16 mm. below the alveolar border: it is immediately below the contact surface of the deciduous molars. Three millimetres anterior to this foramen, and on the same level, is a small foramen, a third being 1 mm. directly anterior to this. These variations from the normal appear to be individual, not racial.

The anterior region of the mandible presents many features of interest. Over the *symphysis mentis* is a well-marked diastema, due to an aberrant tooth, whose nature is discussed later (see "Dentition"). There is a slight trace of a symphyseal crest, which, although hardly visible, can be felt when the finger is passed over the bone. There is no mental process. The chin is definitely retreating (see Fig. 17), that is, the inferior border is posterior to the superior border, the actual angle being 106° , exactly the same as in the Spy jaw, 2° less and 2° greater than in the La Quina adult and the La Chapelle, respectively. In modern man the individual variation, according to Martin, is from 45° to 94° : the average value for newly born infants is 93° .

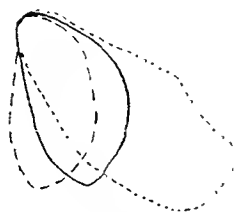
All this region is extremely robust, and the body of the mandible is very thick, owing to the necessity for providing space for the developing teeth.

The medial aspect of the mandible presents many features of special importance. In the ascending ramus region the mylohyoid groove is broad and very shallow, forming a channel rather than a groove. Its anterior border lies opposite the middle

of the dental foramen. There is a short massive lingula and the foramen for the dental nerve is of large size. Except that the mylohyoid groove is so broad, the arrangement is that of a human child. We are dealing with a specimen in which the growth of the jaw is but little advanced, and under such circumstances the arrangement of the parts has not yet become the distinctive feature it is when growth has been completed.

The surface for the insertion of the *pterygoideus internus* has a series of oblique curved ridges. The muscle appears to have been considerably developed, and the inversion of the angle seems to be due to the muscular pull. An exactly similar development of the internal pterygoid may be observed in apes, and is associated with the truncated form of the angle which has been already discussed.

The mylohyoid line is very well marked: it forms the meeting-point of two planes, the upper sloping inwards and downwards from the medial alveolar border and the lower sloping upwards and inwards from the inferior border of the body of the



— Devil's Tower. - - - Young chimpanzee. ····· European child.

FIG. 20.

SECTION THROUGH THE SYMPHYSIS MENTIS OF THE MANDIBLES OF DEVIL'S TOWER, A EUROPEAN CHILD OF SIX YEARS OLD AND OF A CHIMPANZEE OF THE SAME AGE. THE DRAWING WAS OBTAINED BY MAKING A CAST OF EACH AND CUTTING THE CAST AT THE POINT REQUIRED. EACH HAS BEEN ORIENTED IN THE ALVEOLAR PLANE. (NATURAL SIZE.)

mandible. Their meeting-point forms a crest, the mylohyoid line. It seems probable that the well-defined nature of the line is, to a large extent, due to the underlying teeth, and is not necessarily due to a large development of the mylohyoid muscle. Attention may be drawn to the fact that in the apes the arrangement is quite different, the medial surface of the body of the mandible in this region slopes downwards and outwards from the alveolar border to the inferior border of the horizontal ramus.

In the anterior region the lingual surface slopes backwards so that the inner, not the outer, aspect is visible when the specimen is looked at from above. The slope is most marked in the alveolar region. The superior genial foramen is very small, and there is another small foramen above it to the right. Beneath this there is a slight pit, and then on either side muscular markings, probably that of the genio-hyoglossus. There is no trace of mental spines. No doubt, owing to the extreme youth it is extremely difficult to make sure of the muscular attachments.

In spite of the absence of clearly marked muscular markings, an examination of the jaws shows that the musculature was well developed. The form of the digastric imprint is specially noticeable. It can be seen from examination how markedly different it is from the form seen in the apes. Although it differs from the modern human child, both in actual size, and the relations of the two sides, the form is obviously of the same order. Boule (p. 90) has drawn attention to the interesting series presented by a chimpanzee jaw, the Mauer jaw, La Chapelle, and a modern French jaw. He admits that he cannot understand the physiological significance of the variation, which briefly amounts to a gradual shortening and broadening of the imprint. An examination of the specimens leaves no doubt that the Devil's Tower jaw belongs to the same stage of development as La Chapelle.

If the jaw be taken as whole, it is remarkable, even at this stage of development, for its muscularity, but it is relatively small. In the brain-case we have seen that the measurements approach the adult even at five years old. In the mandible, however, this is far from being the case. The bicondylar width is about 102 mm.; the same measurement for La Chapelle is 146 mm. If we take the measurements at the mental foramen, where the growing teeth clearly have a great effect on the size of the jaw, the transverse diameter of the body of the mandible is 13.7 mm., not far short of La Chapelle (16 mm.), as might be expected, whereas the height is only two-thirds that of La Chapelle (21 mm. as against 31 mm.). This is, of course, what was to be expected: but emphasis is laid on the point, because the question of age necessarily affects our judgment on these points: and, as far as the jaw is concerned, we are dealing with a specimen which is only in a rudimentary stage of development, and we can form little estimate of what changes will be induced by the growth and eruption of the permanent teeth. Those other features in other parts of the skull which are correlated with the growth of the jaws will also be expected to be in a similar rudimentary stage, whereas those features related to the growth of the brain will be relatively closer to their adult dimensions.

Dentition.

The general anatomy of the jaws has been already discussed. For descriptive purposes it seemed clearer to consider the dentition separately. The specimen shows certain interesting abnormalities, notably, an aberrant tooth in the anterior region of the mandible. This tooth never erupted. An examination by X-rays showed that the right lateral incisor had been rotated during life, so that the labial surface is now mesial, that is, through an angle of 90° . The whole of the central region is crowded and the teeth are unusually small for Neanderthal man (*see* Pl. V. D). Having had little experience in studying X-ray photographs of teeth I submitted the pictures to my brother, who in turn was kind enough to ask various opinions. The general consensus of opinion is that there is an aberrant tooth, but exactly what this aberrant tooth is, is by no means certain. Mr. Harris, of University

College, London, believes it to be a central incisor of which the crown is laterally, and the root medially, directed. On the other hand, Mr. Northcroft thinks that it is a supplemental tooth between the central and the lateral. He suggests, further, that the aberrant tooth has three cusps or, at any rate, two with a valley between them. I have re-examined the films in the light of these reports, and Mr. Sankey has been good enough to take additional pictures for me. Looked at stereographically the central region appears to contain, from left to right, the following: a canine, a lateral incisor, a central incisor, the aberrant tooth, a rotated lateral incisor, and a canine. The aberrant tooth, however, does not appear to be a normal central incisor. I cannot, using the stereoscope, see three cusps, but there does appear to be a trace of two. It would appear, therefore, as if we had the choice of considering it to be either an abnormal central incisor or, alternately, an entirely aberrant tooth, the normal central incisor not having appeared. In any case, the matter must be definitely put down as pathological, and, therefore, as falling outside our present purpose, which is rather anthropological.

The deciduous dentition is represented by two molars in each jaw, unfortunately on opposite sides: it is not therefore possible to be quite certain of the occlusion. An examination, however, of the crowns shows that the 1st upper temporary molar occluded with the posterior two-thirds of the 1st lower temporary molar and the anterior third of the 2nd. The crowns of the teeth are very much worn, to an unusual degree for temporary teeth, suggesting that even at this early age very considerable use had been made of the teeth. The wear suggests a scissor-action of jaws, as in modern and ancient adult man, and quite unlike the apes. In order to accomplish such a motion of the jaw the canine cannot have projected beyond the level of the other teeth. There is no trace of a diastema in the mandible other than that due to an aberrant tooth. Unfortunately the canine region of the upper jaw is somewhat abraded, and it was not possible to make any exact observations. Boule has recorded a small diastema in the La Chapelle-aux-Saints maxilla. As far as can be judged from the X-ray picture there was no diastema in our maxilla. The deciduous teeth, although large, are by no means outside the range of variation in size even of modern Europeans. The table on p. 82 shows measurements of a European child in the anatomical collection in Oxford which appears to present no unusual features, except that it had large teeth.

The cusps on the Devil's Tower teeth are much worn, and it is not altogether easy to determine exactly their original form, but, as far as can be seen, they do not differ from those of modern man. When, however, the teeth are examined by X-rays the difference in their internal structure is at once apparent. Instead of the normal small pulp-cavity of the modern child the cavity is enormously enlarged and extends to the apex of the roots. The matter is of further importance, as hitherto this condition has been reported in the adult, but not in the deciduous dentition. No doubt we may now assume that such a condition was normal in the Neanderthal

child. Sir Arthur Keith has suggested that the function of this particular development was to insure a firm planting of the teeth in the alveolus. This specimen would seem amply to confirm his suggestion. In the modern child the molars are constricted at the neck with small spreading roots. In this specimen the teeth show but little constriction, and the roots fused together form a firm buttress to withstand the strain put upon them.

				Devil's Tower Skull.		European Child with Large Teeth.	
				A.P.	Trans.	A.P.	Trans.
1st upper deciduous molar	...	...	8.5	9.5		9.1	9.9
2nd upper deciduous molar	...	...	9.3	10.8		10.1	11.9
1st lower deciduous molar	...	...	9.5	8.9			
2nd lower deciduous molar	...	...	11.0	9.9			

I have already drawn attention to the apparently weak development of the temporal musculature, but the wear upon these molars suggests that very considerable grinding force has been used. In describing the mandible I have shown how great is the breadth of the ascending ramus. Here, at least, there are traces of large muscles, and it seems from an examination of the specimens that the molars were probably worn by a lateral movement necessitating considerable use of such muscles as the masseters and the pterygoids. Among modern peoples the wear on the crowns seems to be due to two causes. In very many races there is a great deal of grit in the food, often from the coarse grindstone on which the grain is trituated. In other cases, notably the Eskimo, whose teeth perhaps show a greater development of the scissor-action than those of any modern people, the wear is due to the chewing of meat or skins. In this case the evidence collected by Miss Garrod shows that, although there may have been a certain amount of adventitious sand from the locality, the type of diet would not differ except in the species eaten from that of the Eskimo, that is to say, animal food and shell-fish, though the Eskimo probably get little of the latter. Unless the enamel was particularly soft, and its present condition does not suggest that it was, the child must have been weaned at what is, for savage conditions, a comparatively early age, for many modern savages suckle their infants for several years. In this case the child, even at five, had had sufficient hard food, and had ground it so strongly that already he had obliterated much of the pattern of the cusps on his temporary molars. Further, he had used those molars in what may be described as essentially a human fashion, that is, unlike the apes, he did not rely mostly on an up-and-down movement, but rotated his jaw, showing that he cannot

have had a projecting canine. But human though this temporary dentition is, it shows features of great specialization. It is possible that the form of occlusion and the method of using the jaws may account for the parabolic form of the palate which is also usual among the Eskimo, but at present further evidence is needed on this point.

In regard to the permanent dentition, Mr. Harris has drawn my attention to the following points:—First, in the mandible the premolars and 1st permanent molar appear to be less developed on the right side than on the left. Secondly, the approximation of the crypt of the 1st and 2nd permanent molars to the inferior dental canal is most marked. The canal is widely open, and the general condition is certainly closer to that found in a chimpanzee than in modern man. Thirdly, Mr. Harris points out that the occlusal surface of the 1st permanent molar is almost as wide as the maximum transverse diameter of the crown.

The permanent dentition of the maxilla presents certain interesting features. In contrast to the lower permanent incisors the upper incisors are of great size. No irregularity is visible. The permanent canine is also very big. In its present stage it presents almost a bicuspid appearance, curiously reminiscent of the aberrant tooth in the lower jaw. In this case, however, there is no reason to doubt that we are dealing with a normal canine. The extremely deep position which it occupies, although normal, is very noticeable. The enlarged pulp-cavity of the developing 1st molar is very visible in the X-ray.

Summing up the character of the dentition, the most important features are, first, the enlarged pulp-cavities of the deciduous molars, a character which does not appear to have been previously observed: secondly, certain abnormalities in the incisor region of the mandible, which appear to be of a pathological nature. The general character of the dentition is such that, even if we had no other remains we should not hesitate to ascribe it to Neanderthal man.

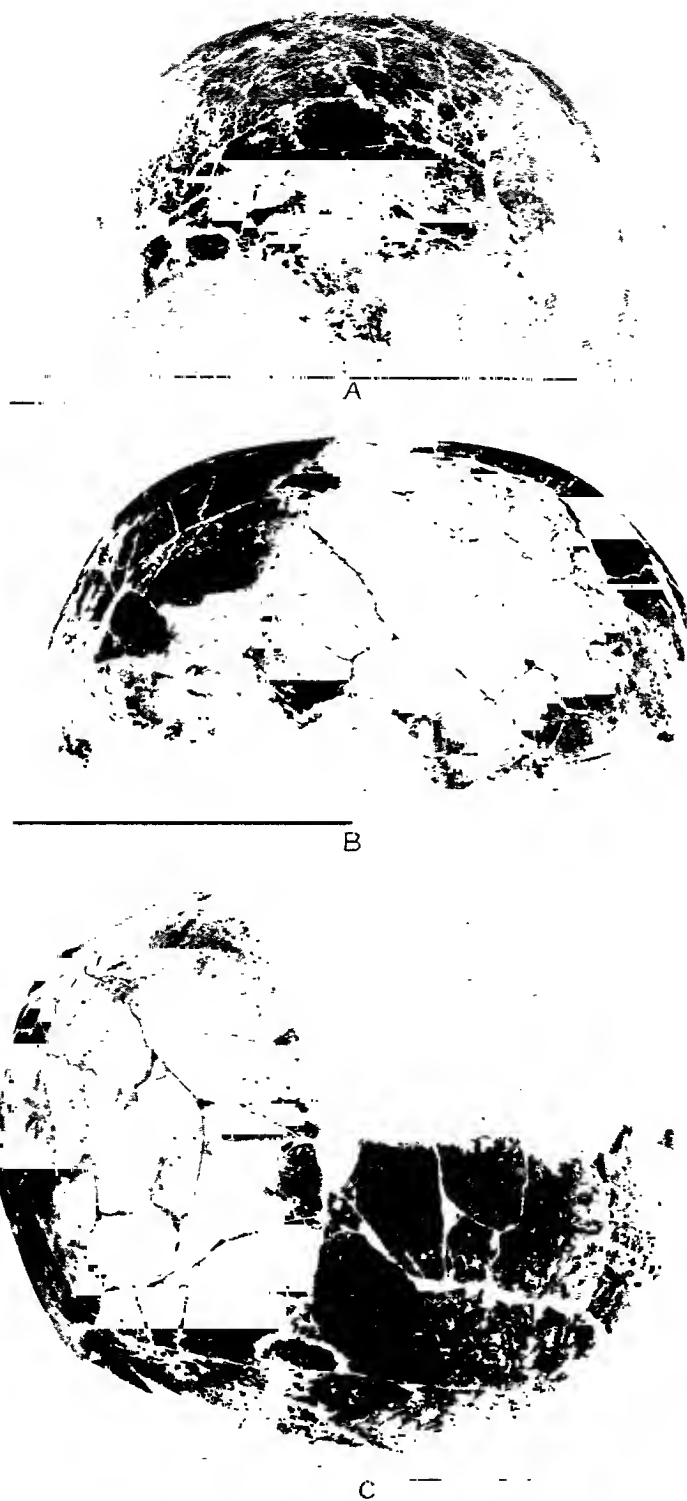
Summary and Conclusions.

The evidence put forward on the preceding pages points to the following conclusions:—

The Devil's Tower bones are the remains of a single individual skull belonging to a child of five years old, probably of the male sex. It is important to remember that he belongs to the late phase of the Mousterian, and is more or less contemporary with the remains from La Chapelle, La Quina (both specimens), and Galilee. The age must necessarily considerably affect our judgment of the specimen. The form of the face and jaws is essentially that which we associate with Neanderthal man. Many of these features can be shown, however, to owe their characteristic appearance partly to the great size of the teeth and partly to functional activities, but the general massiveness, not only of the jaws but also of such features as the tympanic plate, is remarkable.

The evidence of the brain-case needs a less sweeping summary. Here the contours of the forehead are, when seen from the side, almost exactly similar to contours of the La Quina child, but the size of the specimen is very unusual. At first sight it might be suggested that this great size was the result of disease, but the markings on the internal aspect of the brain-case seem too well defined to allow of a pathological condition: nor, in view of the fact that at first the characters of Neanderthal man were put down by no less a person than Virchow himself as pathological, is this hypothesis to be lightly entertained. The dimensions and form of the brain-case, especially the expansion of the frontal area, are beyond the range of Neanderthal man, as hitherto discovered, if we make the same allowance for age that we should do in the case of a modern child. These abnormalities suggest a brain-case built more after the fashion of modern than of Neanderthal man. It is possible that the growth of Neanderthal man was different from that of modern man and that the growth of the brain-case, due, no doubt, to the development of the brain inside it, was more precocious. Under such circumstances the brain-case may be allowed to have reached almost its full development at five years old. Secondly, we may suggest that, owing to the small number of specimens which we possess, we may not know the range of normal variation in Neanderthal man, and that this specimen, though certainly unusual, may be an extreme variation outside the limits so far discovered. Thirdly, we may admit a comparatively close relationship between Neanderthal and modern man, and assume that, owing to the great growth of the brain, the brain-case tends to assume a certain shape either in Neanderthal or in modern man. When we remember the enormously wide variation that occurs in the cranial capacity, and consequently the external measurements of the brain-case of modern man, even among selected examples of the same race, from 1,422 c.c. in Leibnitz to 1,965 c.c. in Bismarck, to quote a famous example, differences in Neanderthal man should not be surprising. The question of the effect of muscular pull may be controversial, though it seems almost certain that the development of the temporal muscle and of the enormous temporal fossa so characteristic of adult Neanderthal man cannot but be without some effect, whatever it may be, on the form of the skull, yet the effect of the growing brain must obviously be paramount in moulding the shape of the envelope, just as the growth of the teeth is paramount in moulding the shape of the face and jaws. The teeth of our specimen closely resemble in size and shape those usually associated with Neanderthal man. The face and jaws must therefore necessarily be close to the typical Neanderthal form. The brain-case is, however, different from the type form, because the underlying structure, the brain, was larger.

In the preceding pages many details have been given showing the individual points in which Neanderthal and modern man differ. It must, however, be pointed out in conclusion, that most of these differences can be shown to be the result of differences in the form and size of two structures in particular, the brain and the teeth.



DEVIL'S TOWER CRANIUM.

A. FRONT VIEW. B. SIDE VIEW. C. TOP VIEW.

EXCAVATION OF A MOUSTERIAN ROCK-SHELTER AT DEVIL'S TOWER, GIBRALTAR.



A



B



C



D



E

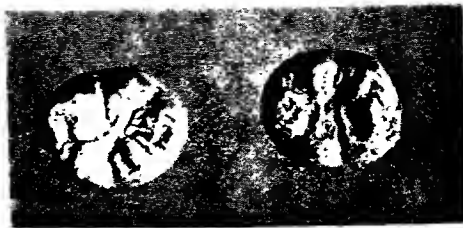
DEVIL'S TOWER CRANIUM.

A. TEMPORAL BONE, BASAL ASPECT, WITH EUROPEAN CHILD, LIGHTER COLOUR, FOR COMPARISON.
 B. PALATE. C. MAXILLA, FROM THE FRONT. D. MANDIBLE, SIDE VIEW; WITH EUROPEAN CHILD
 BELOW. E. MANDIBLE, SEEN FROM BEHIND; WITH EUROPEAN CHILD BELOW.

EXCAVATION OF A MOUSTERIAN ROCK-SHELTER AT DEVIL'S TOWER, GIBRALTAR.



A



B



C



D



E

DEVIL'S TOWER CRANIUM.

A. X-RAY PHOTOGRAPH OF MAXILLA (SIDE VIEW). B. UNERUPTED MOLARS FROM A MANDIBLE (1ST MOLAR ON LEFT, 2ND ON RIGHT). C. X-RAY PHOTOGRAPH OF MANDIBLE (LEFT SIDE). D. X-RAY PHOTOGRAPH OF MANDIBLE (FRONT): THE ABERRANT TOOTH AND DIASTEMA CAN BE SEEN IN THE CENTRE OF THE PICTURE. E. X-RAY PHOTOGRAPH OF MANDIBLE (FROM ABOVE): THE IRREGULARITY IN THE INCISOR REGION CAN ALSO BE SEEN HERE (THE TWO UNERUPTED PERMANENT MOLARS HAD BEEN REMOVED BEFORE THIS PICTURE WAS TAKEN).

(All the X-ray photographs in this Plate are natural size.)

EXCAVATION OF A MOUSTERIAN ROCK-SHELTER AT DEVIL'S TOWER, GIBRALTAR.

Bibliographical Note.

Throughout, continual reference has been made to M. Boule's classic memoir on the skeleton from La Chapelle-aux-Saints,¹ and I have followed M. Boule very closely. For the La Quina child, M. Henri Martin's monograph² has been used. M. Boule's *L'Homme Fossile*, and Sir Arthur Keith's *Antiquity of Man* (1925), have also been used continually. The drawings have all been made by Miss Garrod directly from casts. The figures have been taken from the original memoirs, but morphological comparisons are based as far as possible either on a study of the original specimens or, where these were not available, on casts.

Table of Measurements (in millimetres).

Nasion to lambda	...	...	167	Measurements of thickness of cal-
Glabella	..	..	169	varium—
Ophryon	..	..	164	(1) Along fractured edge of
Nasion-bregma arc	...	...	116	left parietal—
.. .. chord	...	...	102	(a) At coronal suture ...
Bregma-lambda arc	...	...	110	(b) .. lambdoid
.. .. chord	...	...	101	(c) 5 mm. posterior to
Minimum frontal width	...	...	104 (?)	coronal suture (maxi-
Maximum .. ..	...	...	125	mun thickness) ...
Greatest breadth	...	...	[150 (?)]	4.9
Interfronto-malar width	...	...	92.5	(2) Elsewhere on parietal—
Intraorbital width	...	...	24.5	(a) Opposite parietal
Bicondylar width	...	...	[102 (?)]	eminences
Condylar-symphysial length	...	...	[81 (?)]	4.9
Symphysial height	...	...	21	(b) In centre of parieto-
Orbital width (from fronto-malar to				squamous suture ...
fronto-nasal suture)—				5.1
Right	...	...	34	(3) Thickness of frontal bone
Left	...	...	35	at bregma
				5.0

¹ *L'Homme fossile de la Chapelle-aux-Saints* (1912).² *L'Enfant fossile de la Quina* (1926).

CHAPTER III.—THE ENDOCRANIAL CAST.

(Pls. VI and VII.)

By G. ELLIOT SMITH.

MISS GARROD has established the fact that the fossil skull was found in association with industries distinctive of the latest Mousterian phase of culture, and that there can be no doubt as to the date to be assigned to the human remains. Mr. Dudley Buxton has called attention to the evidence in support of the conclusion that the bones are those of a child in a stage of development such as the modern human child attains at five years, which can be assumed also to be the approximate age of the Neanderthal child under consideration. Moreover, he has shown that the skull conforms in all essential respects to the type distinctive of the Neanderthal species, and has reaffirmed the consideration that the differences between the features of the Neanderthal series of remains and those of *Homo sapiens* justify the specific distinction which most anatomists now admit.

It is important to have these questions of the relative age and the distinctive characters definitely settled, because at first sight the endocranial cast of the skull found by Miss Garrod at the Devil's Tower presents a marked contrast to the endocranial casts obtained from other skulls of *H. neanderthalensis*.

In all the other casts there is an obvious lack of fullness in the prefrontal, and less distinctly, superior parietal, areas of the brain. But in the endocranial cast of the skull from Devil's Tower (Pl. VI, Figs. 1, 2; Pl. VII, Fig. 2) these regions are fuller, and seem to present a marked contrast to the meagreness that strikes the eye in the case of all the other Neanderthaloid casts, in particular those of the Galilee and La Quina skulls. In fact the general contour of the cast suggests the possibility that the unusual fullness may be due to hydrocephalus: but the distinctness of the ridges corresponding to the convolutions and the depth of the intervening sulci render the pathological explanation improbable.

The projections which Miss Garrod has prepared to illustrate Mr. Dudley Buxton's report reveal the fact that, in spite of superficial appearances, the cranium of the Devil's Tower skull conforms to the normal Neanderthal contours. When orientated on the nasio-lambda plane, although the endocranial cast of the skull we are considering shows a distinct fullness in the frontal and parietal regions as compared with the Forbes' Quarry and La Quina (adult) casts, the mould obtained from the La Chapelle-aux-Saints cranium is even better developed in these two areas. The cast of the cranium of a modern child of corresponding age reveals a sharply contrasted form, and, in particular, is much loftier.

These contrasts are brought out in an even more striking way in the superimposed projections of the series of endocranial casts seen from above (Text-fig. 22), in which the fullness of the frontal area and the more uniformly oval contour are clearly

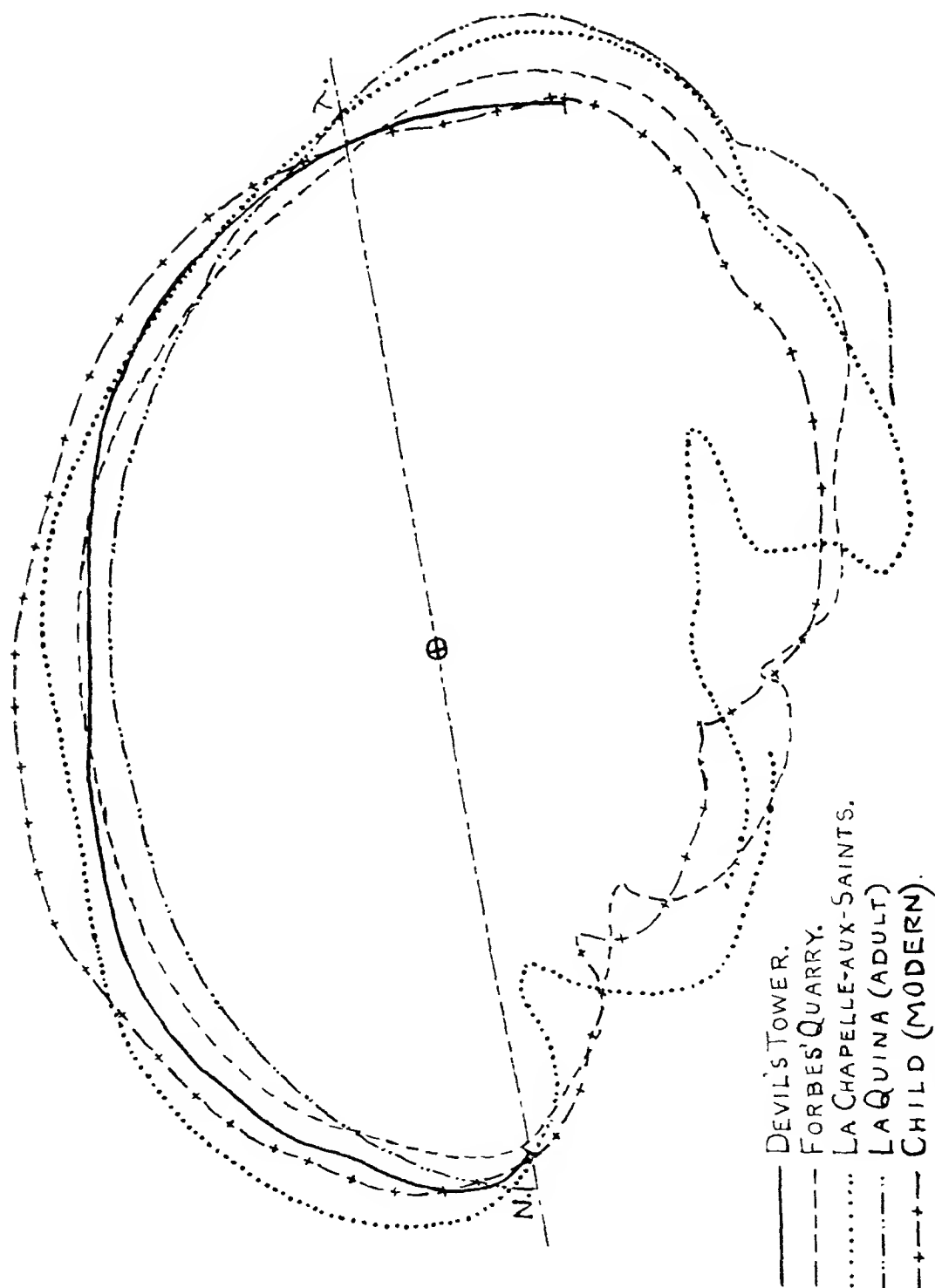


FIG. 2].—ORTHOGONAL PROJECTIONS FROM THE LEFT SIDE OF A SERIES OF FOUR NEANDERTHAL SKULLS AND THAT OF A MODERN CHILD OF AN AGE CORRESPONDING TO THAT OF THE DEVIL'S TOWER SKULL, ORIENTATED ON THE NASIO-LAMBDOID BASE LINE. (NATURAL SIZE.)

(FROM PROJECTIONS MADE BY DR. MATTHEW YOUNG.)

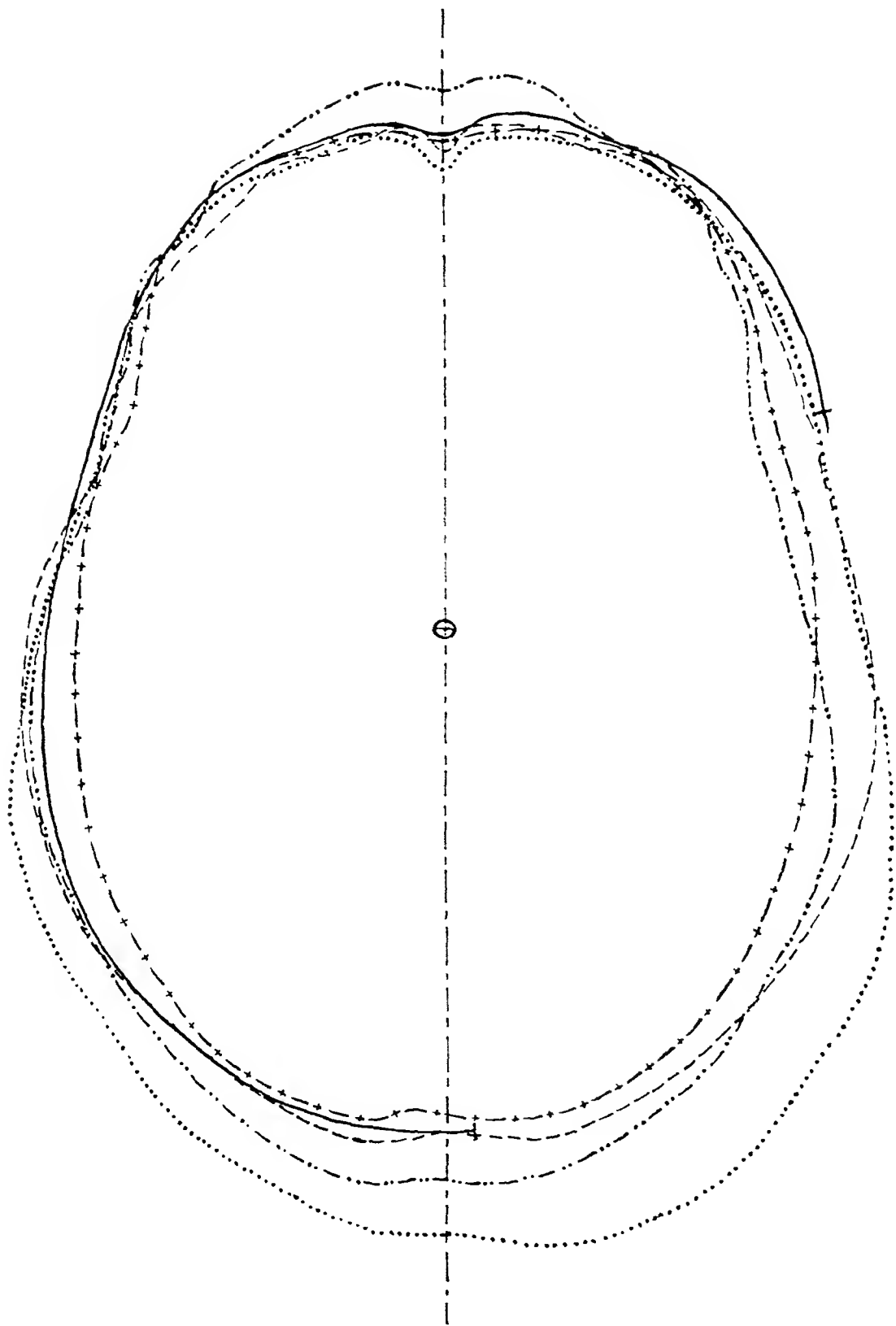
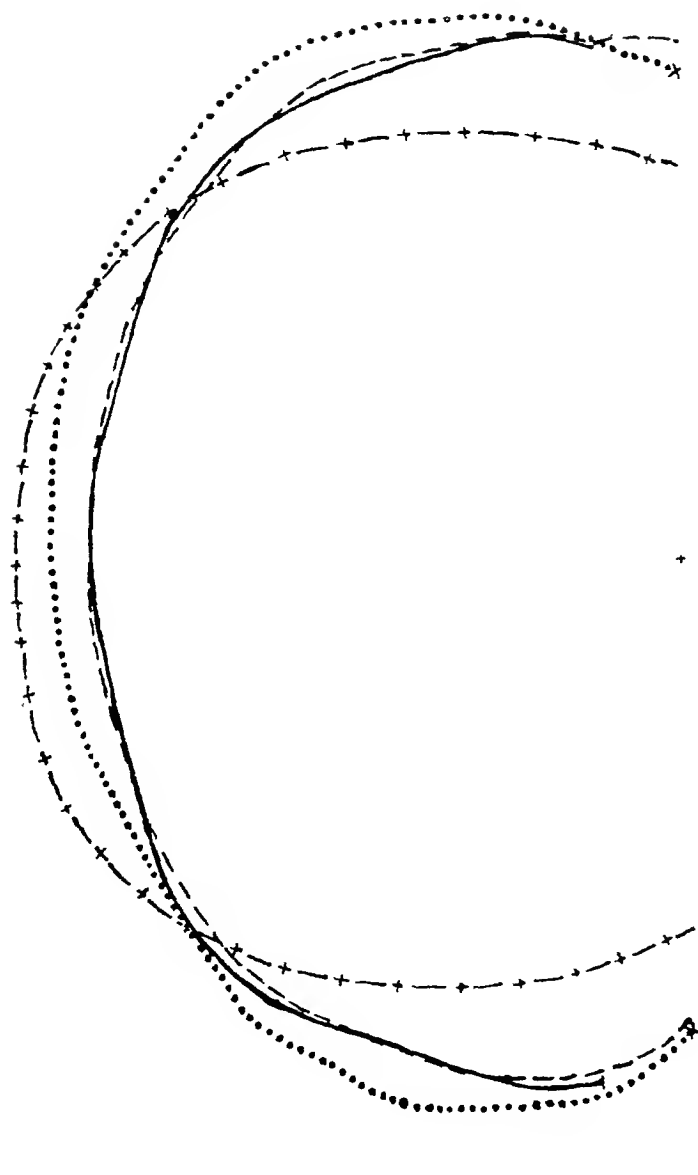


FIG. 22.—ORTHOGONAL PROJECTIONS OF THE SAME SPECIMENS AS IN TEXT-FIG. 21 FROM ABOVE. (NATURAL SIZE.)
(FROM PROJECTIONS MADE BY DR. MATTHEW YOUNG.)



— DEVIL'S TOWER.
 --- FORBES' QUARRY.
 LA CHAPELLE.
 +---+ CHILD (MODERN).

FIG. 23. - CONTOURS OF TRANSVERSE SECTIONS THROUGH THE MID-PARIETAL REGION. (NATURAL SIZE.)
 (FROM PROJECTIONS MADE BY DR. MATTHEW YOUNG.)

displayed. Text-fig. 23 brings out the very remarkable fact that in the mid-parietal transverse sections of the endocranial casts of the two Gibraltar skulls there is a close agreement. The apparent fullness of the parietal area, as seen by direct observation of the cast, is reduced to quite insignificant proportions when the sections are compared.

It will be seen that the cast of the La Chapelle-aux-Saints cranium is in the parietal region both broader and higher than the two Gibraltar specimens, whereas the cast of the modern child's skull is much loftier but narrower.

Comparisons of the three series of projections establish the fact that the brain of the child from Devil's Tower must have conformed to the type distinctive of *H. neanderthalensis*, and that the skull was probably not abnormal.

This brings us to the consideration of the chief interest of the Devil's Tower cast—the high development of the prefrontal area. Although the prefrontal territory in the cast of the La Chapelle-aux-Saints skull appears to be both longer and higher than that of the Devil's Tower specimen, the latter differs from the former (and, in fact, from all the other Neanderthaloid specimens) in not exhibiting any depression (or obvious appearance of ill-development) in contrast to the pre-central area of the cast. In other words, the front part of the brain of the Devil's Tower specimen presents at first sight a curiously modern appearance that sharply contrasts with the configuration of the other Neanderthal casts—and, in particular, with such examples as those obtained from the Galilee and La Quina skulls, in which the prefrontal area is so obviously diminutive and shrunken.

The possibility arises whether this relative fullness of the front end of the brain might be an infantile trait that afterwards became modified as the child attained the adult condition.

Fortunately Professor R. Anthony has described¹ the endocranial cast of a child's skull found at La Quina, which is only two or three years older than that of the child found at the Devil's Tower. The brain of the child from La Quina is comparable in size to that of a modern child of corresponding age: but it displays the distinctively Neanderthaloid features quite as emphatically as does the adult brain. Professor Anthony refers to the meagreness of the prefrontal part of the brain as the outstanding peculiarity of the Neanderthal brain. I prefer to express the fact in a slightly different way. As the series represented by the anthropoid apes, *Pithecanthropus*, *Eoanthropus*, *H. rhodesiensis*, *H. neanderthalensis* and *H. sapiens*, reveals a progressive expansion of the prefrontal territory of the brain, the fullness of the front end of the brain is the most distinctive feature of *H. sapiens*. Moreover, it can be correlated with modern man's manipulative skill and greatly enhanced ability to acquire new forms of skilled action.

¹ "Le volume et la forme d'ensemble de l'encéphale chez un enfant de l'époque quaternaire." ("Étude du moulage endocranien de l'enfant de La Quina," *Bull. de l'Acad. de Médecine*, November 13th, 1923.)



FIG. 1.—THE ENDOCRANIAL CAST FROM THE FRONT.



FIG. 2.—THE ENDOCRANIAL CAST VIEWED FROM THE LEFT SIDE.

(FROM PHOTOGRAPHS BY MR. F. J. PITTOCK. RETOUCHEE BY MR. A. K. MAXWELL.) $\times \frac{1}{11}$.

EXCAVATION OF A MOUSTERIAN ROCK-SHELTER AT DEVIL'S TOWER, GIBRALTAR.



FIG. 1.—CAST OF THE ENDOCRANIAL SURFACE OF THE RIGHT TEMPORAL BONE. BEHIND AND BELOW IS SEEN THE SURFACE OF THE CEREBELLUM (CURVED FROM ABOVE AND BEHIND DOWNWARDS BY THE LARGE RIGHT LATERAL SINUS): THE SPACE SEPARATING IT FROM THE SLOPING AND MUCH-BEVELLED UNDER-SURFACE OF THE INFERIOR TEMPORAL CONVOLUTION IS EXCEPTIONALLY LARGE.



FIG. 2.—THE ENDOCRANIAL CAST FROM ABOVE.

(FROM PHOTOGRAPHS BY MR. F. J. PITTOCK, RETOUCED BY MR. A. K. MAXWELL.) 1/2, 1/2,
EXCAVATION OF A MOUTERIAN ROCK-SHELTER AT DEVIL'S TOWER, GIBRALTAR.

Comparing the form of the frontal end of the brain in the various representatives of *H. neanderthalensis* a wide range of variation is manifest. It is most poorly developed in the Galilee cast, and, relatively, best developed in the Devil's Tower specimen. In spite of the superficial likeness of the latter to the condition distinctive of *H. sapiens*, for the reasons I have given, such similarity is delusive.

The fact that the child whose remains were found at the Devil's Tower had an exceptional development of the prefrontal territory, does not mean that it is a link with *H. sapiens*. It merely points to the conclusion that the brain in *H. neanderthalensis* was subject to the same sort of variations as that of *H. sapiens*. In both an exceptional development may occur in those areas which normally are especially large in *H. sapiens*: but when such local expansion occurs in a Neanderthaloid without altering the distinctive general form of the brain, the front end of the right cerebral hemisphere projects forward a little more than the left (Pl. VII, Fig. 2: and Text-fig. 22)—a type of asymmetry which in modern man I regard as one of the indications of an innate tendency to right-handedness. But I should remind the reader that there is as yet no general agreement as to the validity of this inference.

The brain of the infant from the Devil's Tower exhibits another feature (Pl. VII, Fig. 1) of some interest. There is an exceptionally large gap between the inferior temporal convolution and the cerebellum on the right side (the only side from which the temporal bone was recovered). Moreover, the under-surface of the inferior temporal convolution is deeply hollowed and its margin bevelled. These facts suggest an exceptionally poor development of the temporal region comparable to the conditions revealed by the Piltown and Rhodesian skulls.

Summing up the general conclusions to be drawn from the study of the endocranial cast, we may conclude that the child whose remains were found at the Devil's Tower was a normal representative of the Neanderthal species, with an exceptionally high development of the prefrontal region of the brain and a temporal area that was rather below the average size.

CHAPTER IV.—THE ANIMAL REMAINS.

BY DOROTHEA M. A. BATE.

IT has been known for a long time that fossilized remains of animals occur in the limestone caves and fissures of Gibraltar, and published references to these go back at least as far as 1770 (Boddington and Hunter). In 1794, John Hunter writes (p. 408): "The coast of Dalmatia is said to be almost wholly formed of them [fossil bones], and we know that this is the case with a large portion of the Rock of Gibraltar."

An account of the earlier excavations and the collections from Gibraltar has already been given in chap. I. and will have shown that we owe to Cuvier, Busk, and Falconer the chief descriptions, written and pictorial, of the Pleistocene fauna of the Rock. Although so much was already known, and so much has already been written on this fauna, the collection from the Rock-Shelter of Devil's Tower is the first in which the animal remains were found indubitably associated with Palæolithic human remains and artefacts. It is this definitely established association that gives the present material its chief value. This collection was excavated with great care, all the specimens having indications of the layers from which they came. Nothing, however, has suggested any difference between the animals from the various levels. Many of the bones were embedded in a hard matrix generally composed of white earthy material and rounded or sub-angular sand grains in varying proportions, and cemented together by a calcareous deposit. Others were encased in a thin coating of the same material.

In his preliminary investigation at Devil's Tower the Abbé Breuil (1922) obtained remains of twelve species of mammals and fourteen species of birds. All of the former and many of the latter are represented in the present collection, and these numbers have been greatly added to and include several species now recorded for the first time, one of the most interesting being that of the Great Auk. As already put forward in chap. I, there seems to be little doubt that in Palæolithic times the Rock was not quite so isolated as it is to-day, but at the same time the evidence provided by both the mammalian and avian faunas indicates that there was no land connection at this point with the opposite African coast in Mousterian times.

Busk took a very different view, and one of his tabulated results drawn from the study of the earlier collections was, "That the entire fauna exhibits entirely African affinities." But in reading this it must be remembered that it was published nearly fifty years ago, and that much has been learnt in the intervening years with regard to the Pleistocene fauna of Europe.

Mammalia.

A nominal list is given below of the twenty-five species of mammals, remains of which were obtained from the Devil's Tower deposit. All were found in the various

levels, except the Seal and the Elephant, which occurred in the raised beach (see Figs. 2 and 3). Mr. Hinton has very kindly examined the vole remains, and his report on these will be found on p. 110.

- | | |
|--|--|
| 1. <i>Talpa europæa</i> . | 14. <i>Elionomys quercinus</i> . |
| 2. <i>Crocodura russula</i> . ¹ | 15. <i>Apodemus sylvaticus</i> . |
| 3. <i>Myotis</i> , cf. <i>myotis</i> . | 16. <i>Arvicola</i> sp. |
| 4. <i>Neotomomys tenuis</i> . ¹ | 17. <i>Pitymys</i> sp. |
| 5. <i>Canis lupus</i> . | 18. <i>Microtus breviceps</i> . |
| 6. <i>Ursus arctos</i> . | 19. <i>Hystrix cristata</i> . ¹ |
| 7. <i>Mos mos</i> . ¹ | 20. <i>Sus scrofa</i> . |
| 8. <i>Hyæna crocata</i> . | 21. <i>Cervus elaphus</i> . |
| 9. <i>Felis pardus</i> . | 22. <i>Bos</i> , cf. <i>primigenius</i> . |
| 10. <i>Felis</i> , cf. <i>sylvestris</i> . | 23. <i>Capra pyrenaica</i> . |
| 11. <i>Lynx pardellus</i> . | 24. <i>Equus</i> sp. |
| 12. <i>Monachus albiventer</i> . | 25. <i>Elephas</i> sp. |
| 13. <i>Oryzologus cuniculus</i> . | |

The following additional species have also been recorded from Gibraltar :—

<i>Sorex (?) araneus granulosus</i>	Recorded by Duckworth.
<i>Canis vulpes</i>	Busk.
<i>Prolaqus culpeus</i>	Major.
<i>Pitymys ibericus</i>	Duckworth.
<i>Mus spicilegus hispanicus</i>	Duckworth.
<i>(?) Rupicapra trogas</i>	Duckworth.
<i>Rhinoceros hemitoechus</i>	Busk.

It should be mentioned that Dr. Duckworth's collections were from later deposits, and the record of the chamois (*R. trogas*) is based on a single metatarsal bone.

It also seems useful to add the list given by Busk (1868, p. 151) of the species found in superficial layers, and associated with human remains which are later than Paleolithic :—

- | | |
|--|--------------------------------|
| 1. <i>Bos taurus</i> , of various sizes. | 7. " <i>Lepus timidus</i> ." |
| 2. <i>Capra hircus</i> . | 8. " <i>Lepus cuniculus</i> ." |
| 3. <i>Capra ibex</i> . | 9. " <i>Mos taurus</i> ." |
| 4. <i>Sus scrofa</i> . | 10. " <i>Canis vulpes</i> ." |
| 5. " <i>Mus rattus</i> ," (?) | 11. <i>Phocaena</i> (sp.?). |
| 6. <i>Arvicola</i> sp. | |

To the above may be added a species of *Herpestes* (?) from Genista Cave No. 2.

¹ Not previously recorded as occurring in the Pleistocene cave-fauna of the Rock.

*Notes on the Devil's Tower Specimens.*1. *Talpa europæa* Linn.

The remains of a mole from Devil's Tower include three mandibular rami: one retains the 2nd and 3rd molars and the 4th premolar, another has the 1st and 2nd molars and the 1st and 4th premolars, while the third is without teeth. The teeth show little difference in size from those of Recent examples from Central Europe, Eastern and Western Spain, and Italy, with which they have been compared. There are also nine humeri and a left ulna which are small, and belonged to an animal of more slender build than typical examples of the Recent *T. europæa*. The maximum length of the largest of the nine fossil humeri is 13.7 mm., that of the smallest is 12.2 mm.; in three recent specimens of *T. europæa* this measurement is 16 mm., 16.3 mm., and 16.4 mm.; in one of *T. cæca* it is 16.4 mm. The maximum length of the Gibraltar ulna is 17 mm., that of two recent examples of *T. europæa* 21 mm. and 20.6 mm., and that of an example of *T. cæca* is 21 mm.

Devil's Tower is the only deposit on the Rock from which a mole has been recorded. In his preliminary excavations there, M. l'Abbé Breuil (1922, p. 49) obtained remains which M. Harlé recognized as those of a small species resembling, as he thought, *T. cæca*. This species is said to be smaller than *T. europæa*, but this is not confirmed by the single skeleton which I have for comparison. Therefore, in spite of the small size of the Gibraltar limb-bones, it seems wiser for the present to record them under the name of *T. europæa*, particularly when it is remembered that in dealing with examples from the more southern part of the habitat of a species a decrease in size is commonly observed.

I do not know if a mole is now living in Gibraltar; Irby (1895, p. 25) obtained it in Andalusia. Harlé (1912) did not include it among the Quaternary fauna of the Iberian Peninsula.

2. *Crocidura russula* Hermann.

This white-toothed shrew is represented by a left mandibular ramus containing all the teeth, though the anterior portion of the incisor is missing. This ramus resembles those of Recent examples of this species from more northerly parts of Western Europe, and is somewhat larger than that of the sub-species *C. russula pulchra* from Valencia and other parts of Spain. On the other hand, the cheek-tooth row has an antero-posterior length of only 6 mm. in the Gibraltar specimen, whereas it is 6.5 mm. in an example of *C. russula pulchra*.

This is the first record of a white-toothed shrew from a Gibraltar cave-deposit: Dr. Duckworth (1911, p. 369, pl. xl. 1) found remains of a red-toothed shrew, *Sorex araneus granarius* Miller, in Sewell's Cave.

3. *Myotis*, cf. *myotis* Borkhausen.

This bat is one of the Vespertilionidæ, several members of which are found in the Mediterranean region. It is represented by an imperfect left mandibular ramus

containing the last two molars, and resembling that of a Recent example of this species.

Neither this nor the following species has been previously recorded from Gibraltar deposits: although many bats live in caves, their remains are generally rare in collections, possibly owing to their small size and fragile nature.

4. *Nyctinomus tenuis* Rafinesque.

The second bat included in the collection is one of the larger European species, and also belongs to a widely distributed family, the Molossidae. There are four mandibular rami, only one of which retains any teeth. These are the two premolars, and the canine, which is somewhat broken. There seem to be alveoli for only two, instead of three, incisors, but the 3rd lower incisor is so small in this species that no trace of its insertion might be left, even if it had originally been present. The ramus containing teeth has a maximum length of 16.5 mm. and resembles that of Recent examples.

A single bone, thought to belong to a species of *Vespertilio*, was obtained by Dr. Duckworth.

5. *Canis lupus* Linn. (Fig. 24: 1.)

Wolf remains are not very numerous, but were obtained from four different layers. They include the fragmentary skull of an aged individual, the restored palatal region of which is shown in Fig. 24. This specimen was compared with a recent example from Seville, but in size and general proportions it is more like two Recent skulls from Burgos. The teeth are so extensively worn that their original characters may be somewhat obliterated: the comparative proportions of the two molars and their component parts resemble those in the Burgos specimens: but the carnassial is considerably smaller, owing to the comparatively small size of the anterior portion (paracone) of the tooth. That this difference may be due to the advanced condition of wear is suggested by the fact that the length of the upper cheek-tooth alveolar row is practically the same in the fossil as in the Burgos specimens—85 mm. and 86 mm. It will be seen from the figure that there is no antero-internal tubercle in the carnassials, but this may be due either to the advanced state of wear in these teeth or to individual variation: this tubercle is present in two slightly worn carnassials also in the collection.

There are a few fragmentary lower jaws containing two or more teeth, some of which are slightly larger, and some slightly smaller, than those belonging to the skulls from Burgos.

This is only the second record of the occurrence of wolf remains from Gibraltar: the first was by Dr. Duckworth, who found some limb bones in Sewell's Cave (1911, p. 367).

6. *Ursus arctos* Linn.

Bones and teeth of a form of Brown Bear were found in four of the layers (2-5), but were nowhere numerous. These include a fragment of a left maxilla containing the 1st and 2nd molars: the first has a maximum antero-posterior length of 23.5 mm., and the second 33 mm. This measurement in an isolated unworn example of the 2nd upper molar is 35.5 mm. An imperfect radius and ulna and a number of foot-bones were found together in layer 3.

No Recent skeletons from Spain were available for comparison, but the specimens in the present collection are slightly larger than the corresponding parts of some examples of *U. arctos* from central Europe. On the other hand, they are decidedly smaller than those from the Genista Cave described and figured by Busk (1877, pls. 4, 5, 6). This difference in size suggests the possibility of two distinct races which may have existed at slightly different times, or even contemporaneously. At the present day the Brown Bear of Spain, restricted to the Pyrenees and the Cantabrian Range, is said by Chapman (1893, p. 442) to include two varieties distinguished by size, colour, and habits. Whether these are correlated or not with any osteological differences does not appear to have been recorded. Cabrera (1914, p. 152), on the other hand, considers that only one form, *U. arctos pyrenaicus* Fischer sp., is found in Spain.

Bear remains had already been obtained from the Devil's Tower deposit (Breuil 1922) and from Cave S2 (Duckworth 1914, p. 268). Both large and small forms of *U. arctos* have been recorded from cave deposits in different parts of the Iberian Peninsula (Harlé, 1911).

7. *Meles meles* Linn. (Fig. 24: 2.)

There are three imperfect right mandibular rami of a badger, and these resemble the corresponding parts of Recent specimens from Southern Spain. One of the fossil rami retains the two molars and the three posterior premolars: the carnassial has a maximum antero-posterior length of 18 mm.

This seems to be the first definite record of remains of this animal being obtained in a fossilized state from the Pleistocene deposits of Gibraltar. Busk (1877, p. 88) writes that he found Badger only in the more recent surface deposits. In the explanation of his pl. 3, figs. 8 and 9 are said to represent a maxilla and an immature ramus of *M. meles*, respectively, but in fig. 8, I am unable to recognize the upper dentition of a badger.

8. *Hyæna crocuta* Erxleben.

This species is represented by a dozen coprolites, a few fragmentary teeth and limb bones, and by two imperfect mandibular rami, one of which retains all the teeth except the 1st and 2nd incisors. The cheek-tooth row has an antero-posterior length of 80 mm., a measurement which agrees with that of some Recent examples of this species, and is therefore considerably smaller than in the cave-form.

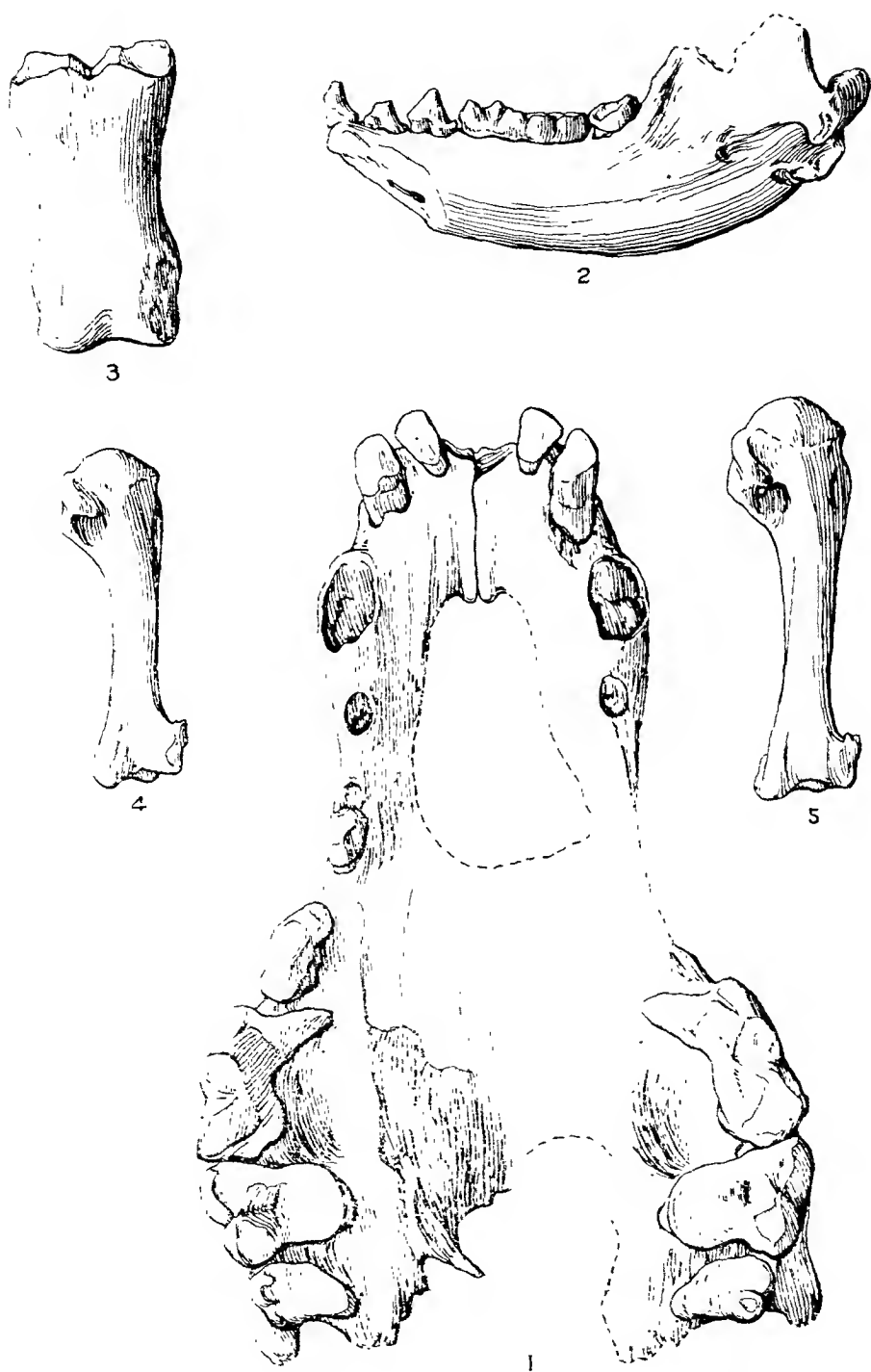


FIG. 24.

1, *Canis lupus*, PALATAL PORTION OF SKULL, NATURAL SIZE. 2, *Mos m¹s*, RIGHT MANDIBULAR RAMUS (NATURAL SIZE). 3, *Mos m¹s*, PROXIMAL EPALAN (1/2 NATURAL SIZE). 4, *Pyrochotus alpinus*, LIGHT MANDIBLE (NATURAL SIZE). 5, *Paraboea quadras*, RIGHT MANDIBLE (NATURAL SIZE).

H. spelæa. That these rami should be referred to *H. crocuta*, and not to *H. striata*, is shown by the characters of the carnassial in which the two cutting lobes are almost equal in size, the posterior one lacking the internal tubercle characteristic of *H. striata*. *H. striata* was doubtfully recorded from Devil's Tower by Harlé (Breuil, 1922, p. 48) on the evidence of a single metatarsal.

9. *Felis pardus* Linn.

Abbé Breuil found some rather small limb bones of a Leopard in the Devil's Tower deposit, and the present collection includes an imperfect left mandibular ramus containing the canine and the three cheek-teeth which are considerably worn. There are also four unworn upper premolars which probably belong to this species, although they lack the antero-internal tubercle usually present in this tooth. The ramus is less massive and the teeth are smaller than in the specimen from the Genista Cave figured by Busk (1877, pl. 3, fig. 1). The antero-posterior length of the cheek-tooth row is 46.5 mm. in the Devil's Tower specimen, 53 mm. in the Genista specimen, and 54 mm. in an example from India. Leopard remains never seem to occur in great quantity, but have been recorded from Pleistocene deposits throughout Western and Central Europe, including the Iberian Peninsula (Harlé, 1910-11; Schlosser, 1923).

10. *Felis* cf. *sylvestris* Schreber.

A wild cat is represented by three mandibular rami, the proximal end of an ulna and the distal portion of a humerus. The least incomplete ramus has lost the canine, but retains the three cheek-teeth which together have an antero-posterior length of 24 mm. It resembles very closely the ramus figured by Busk (1877, pl. iii, fig. 6), which also differs from some recent specimens from Southern Spain in the greater distance between the canine and the anterior premolar, and in the more backwardly sloping direction of the anterior border of the coronoid process.

11. *Lynx pardellus* Miller.

Lynx remains are not often found in any quantity in cave deposits, but in the present collection they are more plentiful than those of any other carnivore. They include portions of twelve mandibular rami, some with the complete dentition; three maxillæ, a few isolated teeth, and the distal portions of several humeri.

This material, no doubt, represents the Southern Lynx which is still found in Spain, and which is smaller and has a very differently shaped skull from the Northern Lynx (*L. borealis*). The jaws and teeth resemble those of a Recent example from Southern Spain, as well as the specimens in the earlier collections from Gibraltar.

12. *Monachus albicenter* Boddart.

The Monk Seal is represented by an imperfect mandibular ramus retaining the canine and two cheek-teeth, from the raised beach. Remains of this seal were found by Dr. Duckworth (1911, p. 367) in Sewell's Cave.

13. *Oryctolagus cuniculus* Linn.

Rabbit remains are more numerous than those of any other mammal, and include some hundreds of specimens which occurred in all the layers of the rock-shelter. Bones of individuals of all ages are present, and a very great difference in size is noticeable: for instance, some skulls are very small, whereas others are slightly larger than Recent examples from Southern Spain.

It was necessary to examine the whole of the Devil's Tower specimens carefully in order that no remains of either *Lepus* or *Prolagus* should be overlooked. Dr. Forsyth Major has pointed out (1899, p. 464, pl. 36) that there is a growth-stage when the upper cheek-teeth of *Oryctolagus* can hardly be distinguished from those of *Prolagus*; but in all examples at this growth-stage there are fortunately also enough skull-parts to make the identification certain. Every specimen that admits of definite identification belongs to *Oryctolagus cuniculus*.

The living wild Rabbit is separated into two sub-species: the larger, *O. cuniculus cuniculus*, is distributed throughout Central Europe north of the Mediterranean region: the smaller, *O. cuniculus huxleyi*, is found in the Mediterranean region as well as in Madeira and the Azores. Mr. Gerrit Miller's key to these sub-species (1912, p. 490) includes two measurements only: the occipito-nasal length of the skull, and the length of the hind foot. There are two skulls from Devil's Tower in which the distance from the posterior margin of the interparietal to the anterior edge of the nasals can be measured. In one this is 73 mm. and in the other 70 mm.: if another 4 mm. be allowed for the supra-occipital, both skulls would still be within the range of size given for *O. cuniculus huxleyi*.

Besides a few imperfect skulls, there are at least a dozen specimens of the palatal region with one or both of the cheek-tooth rows, all of which can be determined as those of rabbit. Imperfect mandibular rami cannot be so definitely distinguished from those of *Lepus*, although, as a rule, the distance between the alveolus of the incisor and that of the anterior cheek-tooth is less in the rabbit than in the hare: all the specimens in the present collection seem to resemble the former.

There are a great number of limb bones from Devil's Tower which are believed to represent the rabbit on account of their generally small size, their relative proportions, and the characteristic form of the ulna. The greater number of the longer limb bones are incomplete, usually a single extremity only being preserved: there are, however, some perfect specimens, and measurements of these are given in the following table with those of two Recent examples of *O. cuniculus cuniculus*¹ and one of *Lepus europæus* for comparison.

¹ There are no Recent skeletal remains of *O. cuniculus huxleyi* available for comparison.

(Maximum lengths in millimetres.)

<i>Orgetolagus canaliculus.</i>						<i>Lepus europaeus.</i> England.
			Devil's Tower.	Brit. Mus. 519. t.	Brit. Mus. 519. t.	
<i>Emur</i>	...	...	71-83 (eight specimens : average 76)	81	102.5	122
<i>Indiv</i>	...	...	89	90	113.6	133.7
<i>H. univ.</i>	...	...	54-62 (thirteen speci- mens : average 58)	64	78	88.1
<i>Radius</i>	...	...	56	60.5	71.8	108.3
<i>Ulna</i>	...	...	68	72.5	85.5	123.5
<i>Metatarsal II</i>	...	...	31.9	33	44.4	49.7

Busk (1877, p. 128) obtained remains of "*Lepus*" from the oldest to the most superficial layers of the Windmill Cave. He records two species of "*Lepus*" but says that "of the larger form only a few perfect bones, corresponding with those of Hare, have occurred." I have not seen these specimens, and the description is so slight that it is not very conclusive, particularly as so far there appears to be no satisfactory record of the occurrence of Hare remains in Pleistocene deposits of the Iberian Peninsula. Harlé (1910-11, p. 51) does indeed mention "Quelques restes de Lièvre" from the Grotte de João Ramos, north of Lisbon, but in his list of mammals from the Quaternary of the Iberian Peninsula, published in 1912 (p. 153), he makes no further mention of this, only referring to the above note by Busk.

In some hard red breccia, among the older collections from Gibraltar, Dr. Forsyth Major (29) discovered remains of a *Prolagus*, which he named *Prolagus calpeensis* (Type specimen, Brit. Mus. M3457), and he believed it was probably this species to which Cuvier drew attention in 1823. In Sardinia and Corsica (Major, 1880) forms of *Prolagus* existed as late as Neolithic times, and it has been suggested that they lingered until even later than this. Rabbit remains have not been found in the Pleistocene deposits of those islands, and it seems possible that the Gibraltar *Prolagus* may have been ousted by that prolific animal.

14. *Eliomys quercinus* Linn.

There are more than two dozen mandibular rami of a Garden Dormouse, but only one of these retains the three molars, while three retain a single molar. These specimens are all somewhat larger than the corresponding parts in recent examples of *E. quercinus* from Central and Northern Spain, but none attain the size found in the large *E. lasdaniensis* now living in Portugal, Southern Spain, and the island of Formentera in the Balearic group.

15. *Apodemus sylvaticus* Linn.

A Field-mouse is represented by two upper jaws with the cheek-teeth, and over fifty mandibular rami retaining one or more cheek-teeth. Thirteen rami retain the full cheek-tooth row which has an antero-posterior length varying from 3.9 mm. to 4.3 mm.; this measurement in the two upper cheek-tooth rows is 4.5 mm. and 4 mm., respectively. These specimens resemble the corresponding parts in Recent examples from other districts of Spain. In some cases the cheek-tooth row in the rami from Devil's Tower is slightly larger than in the Recent *A. sylvaticus dichrurus* from Southern Spain, a sub-species which is found very generally dispersed in the Mediterranean region. The present fossil material does not seem to provide sufficient evidence to admit of sub-specific identification.

19. *Hystrix* cf. *cristata* Linn. (Fig. 25: 6 and 7.)

Porcupine remains were obtained from several levels and include a fragment of a left maxilla with the three molars, portions of upper and lower incisors, and three mandibular rami. One of the rami retains all the cheek-teeth (Fig. 25: 6 and 7), the other two are incomplete and show the premolar and 1st molar in one and the premolar and two anterior molars in the other. In the left ramus (Fig. 25: 6 and 7) the antero-posterior length of the cheek-tooth row is 30 mm., and the depth of the jaw below the premolar is 23 mm. All these specimens are slightly more robust than the corresponding parts in Recent examples from Italy in the British Museum collection. This fragmentary material is not sufficient to show definitely whether the Gibraltar porcupine is the same as the Recent form, for the chief specific differences are found in the characters of the cranium.

This appears to be the first discovery of remains of a porcupine in a Pleistocene deposit of Gibraltar, and I have found no authentic record of its having been previously obtained as a fossil elsewhere in the Iberian Peninsula. Nevertheless it seems most probable that this rodent existed at least in Southern Spain until comparatively recently. In his work on Iberian Mammals, Cabrera (1914) ignores *Hystrix*, but most of the earlier writers include South Spain in its distributional area. Murray (1866, p. 248), for instance, writes of this genus: "The commonest species (*H. cristata*) is found in the south of Europe and north of Africa," and in his map of the distribution of *Hystrix* that of *H. cristata* covers northern Africa, the southern half of the Iberian Peninsula, Southern Italy, and the Balkan Peninsula. Gadow (1897, p. 365) does not include *Hystrix* in his list of mammals of Northern Spain, but refers to it thus:— "*Hystrix cristata*, which is said to be of very rare occurrence in Andalusia." Adame (1888), in a very interesting note, examines in detail the whole question of *H. cristata* in Southern Spain. He not only consulted the works and records of Spanish naturalists, but he also made personal investigations in various parts of the country. As the result of his enquiries he came to the conclusion that *H. cristata* had existed in the

southern region of the peninsula, and that it had only become extinct within historic times ("en la actualidad").

At the present day the distribution of *H. cristata* in the Mediterranean region is curiously disconnected: it is found in Italy from Pisa along the west coast southwards into Sicily, in the island of Rhodes, and in Asia Minor and Palestine. The same, or a closely allied species, is found in Egypt, Tunisia and Algeria. It was doubtless a consideration of the Recent distribution alone which caused Mr. Miller (1912, p. 543, footnote) to remark of this species that "The peculiar distribution suggests the possibility that the animal's presence in Italy is due to artificial introduction." A similar suggestion was made as long ago as 1777 by Erxleben (p. 342), who writes of *H. cristata*:—"Habitat in omni Africa, India, Persia, Palæstina: in Italia atque Hispania exoticæ originis."

The palæontological evidence seems to suggest rather that the porcupine of Italy and Sicily is the survivor of what was formerly a much more widely spread species in Europe. Porcupine remains are known from European deposits of Miocene, or even perhaps earlier age, down to the Pleistocene. Referring more particularly to the records of Pleistocene times we find, for instance, that specimens have been obtained from deposits near Leghorn (Monte Tignoso) which Dr. Forsyth Major (1883, p. 5) could not distinguish from the recent *H. cristata*. From France, Gervais (1867-69, pp. 76-8, fig. 3) described a very large species, *H. major*, from an ossiferous breccia on the small island of Ratomeau which lies off the coast near Marseilles. More recently Harlé (1910, p. 740) described an incisor believed to be that of a large porcupine, probably *H. major*, from a Pleistocene deposit in Haute-Garonne.

20. *Sus scrofa* Linn.

Remains of pig are fairly numerous, and nearly all are those of young animals. There are twenty more or less fragmentary portions of upper and lower jaws containing cheek-teeth, each of which includes one or more milk-teeth. Adult animals are represented by three upper canines and a fragment of a lower canine of very large size: two of the upper tusks have a maximum thickness of 16 mm. and 17.5 mm., and a maximum width of 26 mm. and 29 mm., respectively. A small race of wild pig is found in Southern Spain at the present day.

21. *Cervus elaphus* Linn.

Remains of a Red Deer are fairly plentiful, and include some perfect and other nearly perfect limb bones: there are also a number of isolated teeth and a few imperfect upper and lower jaws. These specimens show a considerable amount of variation in size, a common characteristic in this species. Compared with the corresponding parts in the Recent Red Deer of Southern Spain, the jaws and teeth are similar, only varying from slightly smaller to slightly larger in size. Fossil remains of Deer from Gibraltar were figured by Cuvier as long ago as 1835 (pls. 174 and 176), and more recently by Busk (1877).

22. *Bos* cf. *primigenius* Bojanus.

A few remains of a large ox have already been recorded from this deposit by the Abbé Breuil: the present collection likewise provides a small number, including several upper cheek-teeth and a fragment of a left mandibular ramus containing the two anterior premolars. There are also the imperfect distal ends of two humeri, a portion of a metatarsus, an imperfect calcaneum, an astragalus with a maximum diameter of 93 mm., and a naviculo-cuboid with a maximum diameter of 88 mm. All these resemble and equal in size the larger examples of the corresponding bones of *B. primigenius* in the British Museum collection.

Besides the above there are two foot-bones of much smaller size: a naviculo-cuboid with a maximum diameter of 71 mm., and an astragalus in which this measurement is 76 mm. These are too large to correspond with any of the cervine remains, and seem to indicate the presence of a second species of *Bos*, or possibly *Bison*.

23. *Capra pyrenaica* Schinz.

There are a number of isolated teeth and portions of several dozen upper and lower jaws containing cheek-teeth of the Ibex: they vary in size from being slightly smaller to slightly larger than the corresponding parts in recent specimens from the Sierra Nevada and the Sierra de Gredos. The same applies when they are compared with specimens in the earlier collections from Gibraltar.

24. *Equus caballus* Linn. (Fig. 24: 3.)

A horse is represented by two cervical vertebræ and an adult proximal phalanx, probably of the fore-foot, all of which are of rather small size. Although small, the proportions of the phalanx suggest that it should be referred to the horse rather than to the ass. Its maximum length is 81 mm., and the minimum width of the shaft of the bone is 32 mm. In the corresponding bone of a Recent *E. hemionus* these measurements are 80 mm. and 25 mm., and in *E. przewalski* 73.9 mm.

25. *Elephas* sp.

The collection includes a number of fragments of bones of an animal of very large size, but there is only one specimen sufficiently well preserved to be identified as that of an elephant. This is a lunare obtained from the raised beach and, therefore, not definitely associated with the remains from the cave layers. Most probably it represents *E. antiquus*, a molar of which has been obtained from Gibraltar: the lunare has a maximum diameter of almost 16 cm. ($6\frac{1}{4}$ inches), whereas, according to Leith Adams (1881, p. 159). "The dimensions of the lunare of *E. primigenius* seem seldom to exceed a maximum length of 5 inches. . . ." Up till now remains of *E. primigenius* have only been recorded from the northern part of the Iberian Peninsula.

Aves.

Bird remains from the Pleistocene cave and fissure deposits of Gibraltar were briefly referred to by Busk and others, but no detailed account or list seems to have been given before Dr. Duckworth's reports on his excavations (1911, 1912). Later Mr. E. T. Newton (Breuil, 1922) published a note on the bird material obtained during the preliminary excavations at Devil's Tower, which included remains of thirteen species still found living in the locality.

The present collection contains some thousands of bird bones, nearly all of which were coated with matrix as described on p. 92. It has not yet been possible to clean and examine all of them, but remains of thirty-three species have been distinguished. So far as can be ascertained from isolated bones of the skeleton, all the species, except one, are now living in Europe. The single exception is the Great Auk, which is now totally extinct. Among the existing species the Alpine Chough is no longer found on Gibraltar itself or in the immediate vicinity.

The avian remains, like the mammalian, indicate the existence in Palæolithic times of a much richer and more varied fauna than could be supported on such a restricted area as the Rock now presents. The Alpine Swift is represented by the greatest quantity of bones, which number several hundreds. There are also many bones of Passerines, mostly choughs and thrushes, and of pigeons, those of the Rock Pigeon and Stock Dove being the commonest. Nine species of birds of prey are represented, but not by a large quantity of remains, except in the case of *Gyps fulvus*.

A nominal list is given below of the thirty-three species of birds of which remains were obtained from the Devil's Tower deposit :—

- | | |
|--|---|
| 1. <i>Pyrrhocorax graculus</i> Linn. sp. | 18. <i>Hierax pennatus</i> Gmelin sp. |
| 2. <i>Pyrrhocorax alpinus</i> Linn. sp. | 19. <i>Gyps fulvus</i> Gmelin sp. |
| 3. <i>Fringilla</i> cf. <i>cælebs</i> Linn. | 20. <i>Oidemia</i> (?) <i>fusca</i> Linn. |
| 4. <i>Passer</i> sp. | 21. <i>Mergus</i> cf. <i>serrator</i> Linn. |
| 5. <i>Turdus viscivorus</i> Linn. | 22. <i>Phalacrocorax</i> (?) <i>carbo</i> Linn. |
| 6. <i>Turdus</i> cf. <i>merula</i> Linn. | 23. <i>Phalacrocorax graculus</i> Linn. |
| 7. <i>Turdus</i> sp. | 24. <i>Puffinus Kuhl</i> Boie. |
| 8. <i>Horando rustica</i> Linn. | 25. <i>Puffinus anglorum</i> Temminck sp. |
| 9. <i>Cypselus melba</i> Linn. | 26. <i>Columba livia</i> Gmelin. |
| 10. <i>Picus viridis</i> Linn. | 27. <i>Columba oenas</i> Linn. |
| 11. <i>Falco peregrinus</i> Tun-stall. | 28. <i>Columba palumbus</i> Linn. |
| 12. <i>Falco eleonoræ</i> Gené. | 29. <i>Sterna</i> (?) <i>sandriensis</i> Latham. |
| 13. <i>Falco sabbatea</i> Linn. | 30. <i>Larus fuscus</i> Linn. |
| 14. <i>Falco tinnunculus</i> Linn. | 31. <i>Alca impennis</i> Linn. |
| 15. <i>Falco</i> (?) <i>ceenchris</i> Naumann. | 32. <i>Uria troille</i> Linn. |
| 16. <i>Haliaetus albicilla</i> Linn. sp. | 33. <i>Alctoris</i> (?) <i>petrosa</i> Gmelin sp. |
| 17. <i>Hierax fasciatus</i> Vieillot sp. | |

*Notes on certain of the Species.*1. *Pyrrhocorax graculus* Linn. sp. (Fig. 24: 5.)

Remains of the red-billed Chough are more plentiful in the collection than those of any other Passerine. Besides many fragmentary bones, there are more than twenty nearly complete humeri, a dozen tarso-metatarsi and a number of ulnae, all of which resemble the corresponding bones of the Recent bird. The former abundance of Choughs in the western Mediterranean region is evidenced by their remains, which have been found in caves in many parts of France and especially on the coast-line of the Alpes-Maritimes (Boule, 1927). I have also found bones of this species in the cave deposits of the Balearic Islands, though I never saw any of the living birds in that locality.

2. *Pyrrhocorax alpinus* Linn. sp. (Fig. 24: 4.)

There are a number of humeri and other bones, which resemble those of *P. graculus*, except that they are considerably smaller, and these are believed to be those of the Alpine Chough. I have not a Recent skeleton of *P. alpinus* for comparison, but the humeri of each species from Gibraltar exactly resemble the life-size figures of this bone published by Professor Boule (1919, pl. 39, figs. 9, 10 and 19), while the ten smaller examples are intermediate in size between the two specimens belonging to *P. alpinus* figured by Milne Edwards (1867-71, Atlas ii, pl. 148, figs. 1 and 2, and pl. 156, figs. 8 and 9). The humerus, although of the same length, is distinguished from that of the Jackdaw, *Corvus monedula*, by its more massive proportions.

The common occurrence of remains of these two species of Chough associated in Pleistocene deposits at low altitudes is very interesting, and not only indicates the comparative rarity nowadays of the red-billed Chough, *P. graculus*, but also leads one to enquire what caused the present restriction of *P. alpinus* to high ground. In some countries at the present day the *regional* distribution of these two species is identical, while their *altitudinal* distribution remains distinct. I saw an interesting illustration of this in the Picos de Europa in Northern Spain in early summer. In a narrow mountain valley not half a mile long, and at a height of a little over 3,000 feet above sea-level, there were flocks consisting of many hundreds of Choughs. In the middle of this small valley both species mingled together: a few hundred yards above this spot, and upwards to the highest crags, only the alpine bird was found, whereas, immediately below their common ground, the red-billed bird alone was to be seen.

19. *Gyps fulvus* Gmelin sp. (Fig. 25: 3-10.)

Bones of a large bird of prey are fairly numerous and prove to be those of the Griffon Vulture. At least six individuals are represented by the proximal and distal ends of various limb bones, a complete tarso-metatarsus, and the anterior portions of four sterna. In the last the inner ends of the coracoidal grooves cross behind the

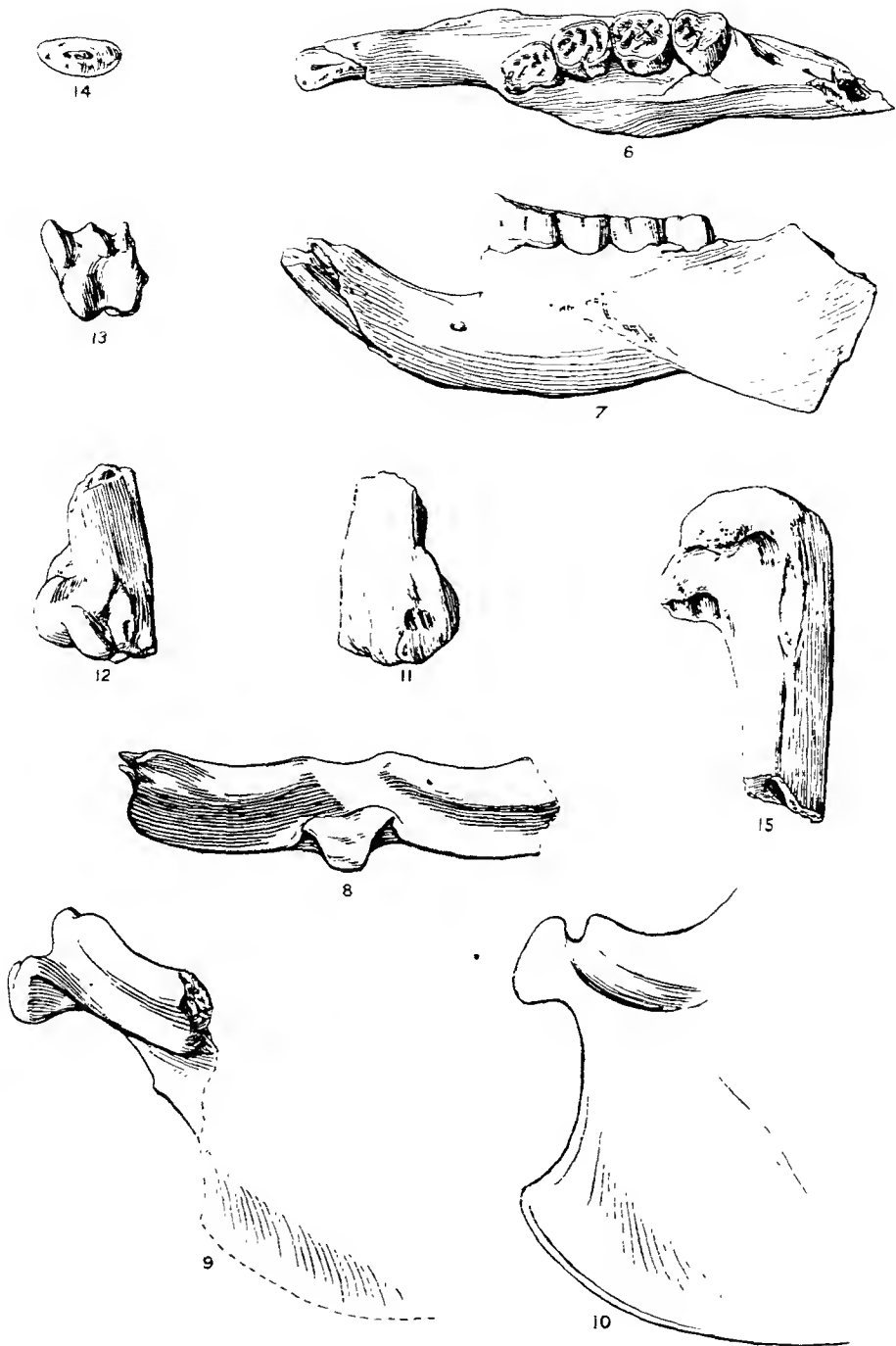


FIG. 25.

6. *Hystria* cf. *cristata*. LEFT MANDIBULAR RAMUS, SHOWING CROWNS OF TEETH (NATURAL SIZE). 7. *Hystria* cf. *cristata*. DITTO, LATERAL VIEW (NATURAL SIZE). 8. *Gyps fulvus*. FRAGMENT OF ANTERIOR PORTION OF STERNUM, TO SHOW THE CROSSING OF THE CORACOIDAL GROOVES (NATURAL SIZE). 9. *Gyps fulvus*. DITTO, LATERAL VIEW (NATURAL SIZE). 10. *Haliaetus albicilla*. ANTERIOR PORTION OF STERNUM, LATERAL VIEW (NATURAL SIZE). 11. *Alca impennis*. DISTAL END OF RIGHT HUMERUS, ANCONAL ASPECT (NATURAL SIZE). 12. *Alca impennis*. DITTO, PALMAR ASPECT (NATURAL SIZE). 13. *Alca impennis*. DITTO, DISTAL SURFACE (NATURAL SIZE). 14. *Alca impennis*. (CROSS-SECTION OF SHAFT OF HUMERUS (NATURAL SIZE). 15. *Alca impennis*. PROXIMAL PORTION OF RIGHT HUMERUS (NATURAL SIZE) (BUSK COLLECTION).

rostrum (Fig. 25 : 8), somewhat as they do in *Halastur albicilla*, as pointed out by Mr. E. T. Newton (Breuil, 1922, p. 49). That the specimens should be referred to *Gyps*, rather than to *Halastur*, is determined not only by their greater size but by the presence of a broad flat area below the rostrum and before the outspringing of the keel (Fig. 25 : 9 and 10), and by the irregularly triangular shape of the anterior face of the rostrum itself.

Besides the specimens mentioned above, there is the distal half of a very large tarso-metatarsus. At its articular end the maximum width is 32 mm., which is very little less than that of one of the type specimens of *G. malitensis*. The Gibraltar bone, however, differs from the Maltese, in having less robust trochleæ, also the external trochlea is almost as long as the median trochlea.

The Griffon Vulture is common near Gibraltar, nesting in colonies among cliffs and cavernous rocks.

31. *Alca impennis* Linn. (Fig. 25 : 11-14.)

The Great Auk is represented by a single and quite unmistakable fragment. This, the distal portion of a right humerus (Fig. 25 : 11-14), need not be described here, because Owen (1865) has already described the humerus of *A. impennis* in great detail. Except for its considerably greater size, this portion of the humerus is very similar to that of the Razorbill (*A. torda*), the Guillemot (*Uria troille*), and the Little Auk (*Alle alle*). The maximum width of the distal articulating end of the humerus of *A. impennis* from Devil's Tower is 16 mm., and that of a specimen from a broch in Caithness, Scotland, 15.6 mm. The corresponding measurement in *A. torda* is 10.6 mm., in *U. troille* 12.3 mm., and in *Alle alle* 5.8 mm.

Busk brought home some bird remains from Gibraltar, for I have found a few from his collection, now in the British Museum, which had never been identified. Among them, and of interest in view of the present find, is the proximal portion of a right humerus of the Great Auk shown in Fig. 25 : 15.

The occurrence of the Great Auk in the Mediterranean region in Palæolithic times does not necessarily imply a very different climate to that obtaining at the present day. That this bird was commonly known only from northerly latitudes within historic times may be responsible for its being usually considered an entirely northern, though not an arctic, species. Gradually our knowledge of its distribution is being extended. The literature on the subject is already so vast that I shall only refer to a few of the earlier works. In 1903 Blasius (in Naumann) brought together a number of most interesting records, and gave a map of the distribution of the Great Auk as then known both from historic sources and from the discovery of fossil or sub-fossil remains. This map shows that the various records are numerous from North-western Europe, but chiefly in Iceland, the British Isles, and Scandinavia. The most southerly European localities for Recent specimens, though given doubtfully, are Northern France, the Bay of Biscay, and, possibly, the coast of Spain.

On the western side of the Atlantic, bones are recorded as far south as Northern Florida.

In 1920 Dr. C. W. Andrews published a note on remains of the Great Auk obtained from a cave in St. Brelade's Bay, Jersey, which was believed to be the most southerly European record. In the same year, however, Barone G. A. Blanc announced a most interesting discovery, namely, remains of Great Auk in the upper layers of a very extensive deposit in the Grotta Romanelli in Southern Italy (Otranto). In 1926, M. and Mme. Péquart (p. 207) recorded the finding of remains of this bird in a kitchen-midden on a small island off the coast of Morbihan, France. Both the Little Auk and the Razorbill visit the Mediterranean at the present day.

It is generally considered that the final extinction of the Great Auk in the north was largely due to man's interference, and it is possible that its retreat from the Mediterranean was also hastened by human agency. It may not have been entirely owing to a severe climate and a consequent scarcity of fresh meat that the Great Auk was used for food in the north. Both here and in the south, at all events during the nesting season, early man would have obtained it more easily than flying species, and the fact that Cormorants are still eaten in the Mediterranean region is a proof that a fishy flavour is no deterrent. My boatmen in Mallorca, where, a few years ago, I was excavating a cave only to be reached by a journey of several hours by boat, always brought an old muzzle-loader with which they used to shoot, not only Rock-Pigeons, but also Cormorants for food. In spring the nests of the latter were visited in search of the young birds which appeared to be esteemed as a delicacy.

33. *Alcedo* (?) *petrosa* Gmelin sp.

There are a considerable number of gallinaceous bird bones in the collection, all belonging to one or other of the two species of Partridge found in the Iberian Peninsula. From a comparison of some recent examples, both skeletons and skins, of *A. petrosa* and *A. rufa*, it has been found that the tarso-metatarsus of the former is appreciably longer than that of the latter. There are in the collection twenty almost complete specimens of this bone, some belonging to male and some to female birds, and resembling the tarso-metatarsus of *A. petrosa*. A number of humeri and a tibio-tarsus probably also belong to this species. A few humeri and tarso-metatarsi of smaller size are more doubtfully referred to *A. rufa*.

The present-day distribution of the Partridges of Spain is of considerable interest. *A. rufa*, the red-legged Partridge, is found throughout Spain and Portugal, with the exception of Gibraltar, where it is replaced by a quite distinct form, namely *A. petrosa*, the Barbary Partridge. This bird, which is also a resident in Sardinia, is found outside Europe only in the Canaries and from Morocco to eastern Tripoli. The fact that it occurs on Gibraltar and in Sardinia, places which are on the outskirts of the range of *A. rufa*, its European representative, raises the question of possible artificial or accidental introduction. This question is often difficult to answer satisfactorily.

but the answer is sometimes supplied by palæontological evidence, as in the case of the porcupine already referred to. The material in the present collection is insufficient to provide conclusive evidence, but it is enough to suggest that *A. petrosa* may be an ancient inhabitant, rather than a recent accidental addition to the fauna of the Rock.

Remains of a species of Francolin and Pheasant have been recorded from Gibraltar by Dr. Duckworth, but do not occur in the present collection.

Reptilia.

There are a number of fragmentary remains of a tortoise which Mr. W. E. Swinton has kindly examined and identified as *Testudo ibera* Pallas, a species still found living in Southern Spain.

Pisces.

The collection contains very few fish remains, mostly indeterminable. Dr. Erroll I. White has kindly identified an imperfect skull as that of a Percoid, cf. *Lates*.

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APPENDIX B.

NOTE ON THE FOSSIL VOLES. BY MARTIN A. C. HINTON.

THREE species are represented by the remains of voles collected by Miss Garrod from the Devil's Tower, namely:—

(1) *Arvicola* sp.

Two imperfect right mandibular rami are clearly referable to this genus. The characteristic tooth m_{11} is present in one specimen and has a persistent third outer fold similar to that shown in my figure 106.6.¹ In the other specimen this tooth is missing. These remains are insufficient for a more precise determination.

(2) *Pitymys* sp.

One right and two left mandibular rami have m_{11} in place. This tooth shows the three closed triangles and a confluent pair of triangles between the anterior and posterior loops characteristic of this genus. The material is insufficient for specific determination.

(3) *Microtus beccanensis* Giebel.

With the exception of the scanty remains noticed above, all the vole material collected by Miss Garrod is referable to a well-marked and most interesting species of *Microtus*. Hitherto little has been known of this species, and the more or less complete palatal specimens and numerous mandibular rami obtained by Miss Garrod afford welcome information as to the characters of this form.

Cuvier, in 1823,² described the vole remains occurring in the breccias of Cette, Corsica, and Sardinia. The material before him was relatively scanty, and knowledge of the Microtinae was at that time meagre, so that Cuvier was not able to determine the remains with any great precision. In 1847, Giebel,³ without adding anything to our knowledge of the fossil species, bestowed the

¹ *Mon. Voles and Lemmings*, I, p. 392.

² *Fauna der Corse*, I, p. 88.

³ *Oss. Foss.*, ed. 3, iv, pp. 202, 205 and 225; v, part I, p. 54.

name *Hypobius breccensis* upon the remains described by Cuvier. Later, Hensell described further material from Sardinia under the name *Arvoda ambigua*, a name previously used by Pomel for fossil remains of *Dicrostonyx* from the Auvergne. In 1905, Forsyth Major examined Cuvier's original material from Cette and large collections which he himself had made in Sardinia and Corsica. He found that the fossil voles of the islands differed generically from those from the mainland, the vole from Cette being referable to true *Microtus*, whereas those from the islands represented a new genus, *Typhlomys*, more closely related to *Pitymys* than to *Microtus*. Giebel's name, "*breccensis*," he stated, should be restricted to the species occurring in the breccia on the mainland. Forsyth Major¹ stated that some jaws which he had worked out from the Gibraltar breccia appeared to be identical with those from Cette. The specimens collected by Miss Garrod and a jaw (M. 12428) from Gibraltar, presented to the British Museum by the Admiralty, agree perfectly with the remains mentioned by Forsyth Major, and they may therefore be likewise referred to *M. breccensis*. The characters of this species have not hitherto been defined, and may be described as follows:—

Size, medium (dental length, 17.3 mm.; maxillary-tooth row, 6.5; mandibular-tooth row, 7.5-7).

Palate and mandible as in normal *Microtus*.

Cheek-teeth characterized by reduction of the anterior loop of m_1 and of the posterior loop of m_2 ; m_1 with a posterior loop, five closed triangles and a short more-or-less nivaloid anterior loop, with three outer and four inner re-entrant folds, and with four outer and five inner salient angles; the fourth outer infold usually obsolete (well developed in one specimen); the sixth inner salient angle obsolete or vestigial; m_2 with the fourth inner and outer salient angles vestigial. Other teeth as in normal tetramerodont *Microtus*. The characters of m_1 are clearly indicated in Cuvier's rather crude figure of the crowns of m_1 and m_2 in the vole from Cette (pl. xiv, Fig. 25).

A study of this material from Gibraltar has led me to make two interesting and suggestive comparisons. To one familiar with the nivaloid voles of the later Middle Terrace deposits of Britain, the general resemblance of *M. breccensis* to some of the forms which I have referred to *M. nivalis* and *M. mahi* is striking.² On the other hand, comparing these remains with recent Spanish voles, one finds it very difficult to find characters which will distinguish them satisfactorily from the remarkable species *M. cabreræ*, described by Thomas, from the southern slopes of the Sierra de Guadarrama.

It is to be hoped that further collecting at Gibraltar will result in the acquisition of a tolerably complete skull, for such a specimen will lead, in my opinion, to the solution of two or three most perplexing problems. The material representing *M. cabreræ* and *M. dentatus*, an allied recent form, is very scanty, and more specimens of recent *Microtus* from Central and Southern Spain are urgently required.

APPENDIX C.

FOSSIL MOLLUSCA. By PAUL FISCHER.³

THE upper strata, 2, 3, 4, 5 and 6, contain numerous shells of molluscs, obviously kitchen-refuse, and belonging mostly to Atlantic species. The raised beach, on the other hand, contains mostly

¹ Zs. deutsch. geol. Ges., vii, p. 469.

² Geol. Mag. (5), 11, 1905, p. 505.

³ Mon. Vols and Lammings, 1, pp. 129-33, figs. 66 and 67.

⁴ M. Fischer's manuscript as originally received was in French and written in considerable detail. I am responsible for the present condensed form, and am indebted to the British Museum (Natural History) for reading the revised manuscript. The work of editing has been confined to condensation, and the lists and identifications are written by M. Fischer, to whom we owe our thanks, both for his detailed and laborious work and also for allowing us to shorten his paper.—L. H. D. B.

Mediterranean shells. The remains are of great interest, as they give both a clear indication of the malacological fauna of Gibraltar in Mousterian times and also of the diet of early man. The shells are discussed in detail below in two sections, (1) the upper strata and (2) the raised beach.

1.—The Upper Strata.

The marine shells found in these strata are certainly contemporary with their formation. This does not, however, necessarily follow in the case of the terrestrial molluscs, which are capable of burying themselves deeply when hibernating. The list of these latter is given, therefore, with this reservation. The kitchen-middens are formed almost entirely of limpets and mussels. The former belong with few exceptions to the Atlantic species *Patella vulgata*, with its varieties, *major*, *conica*, etc. Two specimens of *Patella depressa*, another Atlantic species, and fifteen of *Patella ferruginea*, a large Mediterranean species, were also determined.

The mussels, which include thirty valves and numerous fragments, are mostly *Mytilus edulis*, var. *galloprovincialis*, of very large size: this variety is found both in the Atlantic and the Mediterranean. A certain number of typical *Mytilus edulis* were also found generally of rather smaller size. A single valve of *Mytilus lineatus*, a Mediterranean species, was found.

List of Shells from Upper Strata.

Stratum.	Marine Shells.	Land Shells.
2 (Tufa).	<i>Patella vulgata</i> L. (abundant) and var. <i>conica</i> Brown. <i>Mytilus edulis</i> L. and var. <i>galloprovincialis</i> Lk. (abundant). <i>Patella ferruginea</i> Gmel. <i>Cardium</i> sp.	<i>Rumina decollata</i> L. (extremely abundant). <i>Helix alvensis</i> de Ferussac (very abundant). <i>H. marmorata</i> Fér. (abundant). <i>H. calpeana</i> Morelet. <i>Hyalina</i> (? <i>ancarrica</i>) Bourguignat. <i>Helix emmelen</i> Risso and <i>H. semipecta</i> Hidalgo.
3 (Sand).	<i>Patella vulgata</i> L. <i>Mytilus edulis</i> L., var. <i>galloprovincialis</i> . <i>Patella ferruginea</i> . <i>Sipha nodifera</i> L. (fragment). <i>Lucina borealis</i> L.	<i>Helix alvensis</i> , <i>H. marmorata</i> , <i>H. calpeana</i> , <i>H. aspersa</i> Muller. <i>Bulmonax montanus</i> Drap.
4 (Travertine).	<i>Patella vulgata</i> . <i>Mytilus edulis</i> , var. <i>galloprovincialis</i> . <i>Sipha nodifera</i> (fragment).	<i>Rumina decollata</i> . <i>Helix alvensis</i> .
5 (Sand).	<i>Patella vulgata</i> and var. <i>major</i> Dautz and Dur. <i>Mytilus edulis</i> and var. <i>galloprovincialis</i> . <i>Patella ferruginea</i> . <i>Perla Jacobus</i> L. <i>Patella depressa</i> Pennant.	<i>Rumina decollata</i> . <i>Helix alvensis</i> .
6 (Travertine and sand).	<i>Spondylus gaudeopus</i> L.	<i>Helix calpeana</i> (very abundant). <i>H. alvensis</i> (abundant). <i>H. marmorata</i> . <i>Hyalina</i> (? <i>ancarrica</i>). <i>Bulmonax</i> (? <i>montanus</i> Draparnaud). <i>Rumina decollata</i> .

2.—Raised Beach.

Beneath stratum 6 is a raised beach 9 m. above sea-level. The shells are chiefly those of Mediterranean species, although they include several which are confined to the Atlantic. Taken as a whole, the Mousterian fauna does not differ from that of the Straits of Gibraltar to-day. The following list, arranged in zoological order, gives the number of individuals received, or, in the

case of lamellibranchs, of valves, together with their modern distribution. In addition to the marine species, several land molluscs were also found, including *Helix alonensis*, *Rumina decollata* and *Hygulinia* sp. :—

col- Number lected.	Mediterranean. Atlantic.	col- Number lected.	Mediterranean. Atlantic.
PELMONATA.		PROSOBRANCHIA (contd.).	
1	<i>Alema Firmini</i> Payr. ...	2	<i>Calliostoma zephyrinum</i> L. ...
		2	.. <i>Montagu</i> Wood
		1	<i>Haliotis tuberculata</i> L. ...
		10	<i>Glyphis mamillata</i> Risso and var. <i>gibberula</i> Lk.
		10	<i>Patella vulgata</i> L. ...
		16	.. <i>coccinea</i> L. ...
		4	.. <i>ferruginea</i> Gmel. ...
		1	.. <i>suffusa</i> Lk. ...
PROSOBRANCHIA.		LAMELLIBRANCHIA.	
1	<i>Marginella meliana</i> L. ...	6	<i>Ostrea edulis</i> L. ...
1	<i>Fusus rostratus</i> Olivi ...	1	<i>Anomia cypripium</i> L. ...
2	<i>Pisana Orbigny</i> Payr. ...	1	<i>Lima hians</i> Gmel. ...
3	<i>Pollia scabra</i> Mtr. ...	1	<i>Lima lima</i> L. ...
2	<i>Nassa incrassata</i> Muller ...	1	<i>Pecten claratus</i> Poli ...
1	<i>Columbella rustica</i> L. ...	1	<i>Chlamys carer</i> L. ...
1	<i>Murex Blainvilliei</i> Payr., var. <i>inermis</i> Mtr.	27	.. <i>multistriata</i> Poli ...
2	<i>Ocenebra Edwardsi</i> Payr. ...	2	.. <i>distata</i> Da Costa ...
3	<i>Donacaria minima</i> Mtg. ...	4	<i>Mytilus edulis</i> L., var. <i>gallo-</i> <i>provincialis</i> Lk.
1	<i>Purpura haemastoma</i> L. ...	11	<i>Lithophaga lithophaga</i> L. ...
1	<i>Sipha nodifera</i> Lk. ...	2	<i>Arca barbata</i> L. ...
1	<i>Trinia arctica</i> Solander, var. <i>europaea</i> Mtg.	11	.. <i>luctu</i> L. ...
2	<i>Bittium reticulatum</i> Da Costa	3	<i>Cardita calyculata</i> L. ...
10	<i>Cerithium vulgatum</i> Brug. with var. <i>albicastra</i> Brocchi	1	<i>Venus verrucosa</i> L. ...
2	<i>Vermetus cristatus</i> Biondi ...	3	.. <i>casina</i> L. ...
13	<i>Littorina neritoides</i> L. ...	10	<i>Diplodonta rotundata</i> Mtg. ...
2	<i>Fossarus costatus</i> Brocchi ...	23	<i>Ercilia castanea</i> Mtg. ...
3	<i>Calyptrea chionensis</i> L. ...	9	<i>Lucina borealis</i> L. ...
1	<i>Natica fusca</i> Blainville ...	37	<i>Jagouea reticulata</i> Poli ...
2	.. <i>nitida</i> Donovan ...	1	<i>Loripes lacteus</i> L. ...
2	<i>Turbo rugosus</i> L. ...	1	<i>Tellina babuстина</i> L....
2	.. <i>sanguineus</i> L. ...		
26	<i>Clanculus Jussieu</i> Payr. ...		
18	<i>Trochocochlea turbinata</i> Born.		
110	.. <i>articulata</i> Lk....		
1	<i>Gibbula magi</i> L. ...		
201	.. <i>divaricata</i> L. ...		
2	.. <i>rufa</i> L. ...		

Notes on Certain Species.—The fragments of *Pecten jacobaeus* found in the tufa of stratum 5. show a certain analogy with *Pecten maximus* L. of the Atlantic, notably in the large number (6 or 8 instead of 3 or 4) of the rings on the borders of the right valve. This intermediate form has been shown by Henry Fischer to have existed during the quaternary period.¹

A specimen of *Ocenebra Edwardsi* recalls a modern variety which occurs in Madeira. This is the only indication of any suggestion of climatic change. Several of the species found, notably *Trochocochlea articulata* and *T. turbinata*, are remarkable for their size. *Jagouea reticulata* also shows, but to a lesser degree, this increase in size.

¹ *L'Anthropologie*, 1896, vii, p. 643 (Mas d'Azil).

MUMMIFICATION IN AUSTRALIA AND IN AMERICA.

[WITH PLATES VIII-XIII.]

By WARREN R. DAWSON.

It has long been recognized that the curious and interesting custom of mummification has a considerable geographical range outside Egypt. In 1915, Professor Elliot Smith collected a large body of evidence relating to the spread of the custom from Egypt along the coast-lines of a great part of the world, and he called attention to the fact that the practice is usually associated with a series of others with which it has no genetic connection.¹ Mummification in some localities reached an advanced stage of technique, particularly in the Canary Islands, in the islands of Torres Straits, in Australia, and in America. I have been able to add considerably to our knowledge of the technique of embalming in the two first-named localities from the examination of actual specimens, and have called attention to the fact that many of the distinctive features of the special processes employed by the Egyptian embalmers in the Twenty-first Dynasty are strikingly reproduced, down to the minutest details, in these widely separated areas.² In the present paper I do not propose to discuss the subject of the migration of the custom of mummification, but to limit myself to making some observations upon its occurrence in Australia and in the New World, based upon the detailed examination of a number of actual specimens and upon a careful study of the published literature. I have large quantities of notes relating to mummification in other parts of the world, and these I hope to publish before long.

I.—AUSTRALIA.

The art of mummification having reached a high stage of development in the neighbouring islands of Torres Straits, one would naturally expect to find some trace of the custom on the mainland of Australia. This expectation is fulfilled by the facts, for mummification in various forms has a wide range in Northern Australia, extending throughout Queensland and reaching as far south as Adelaide.

Ethnographical literature is strangely silent on the subject of mummification in Australia. Although passing mention is made in various works of the local methods of disposing of the dead, so far as I am aware no detailed descriptions of the technique of embalming nor of any actual mummies have as yet appeared. Some years ago,

¹ *The Migrations of Early Culture*, Manchester, 1915. (Reprinted from *Mem. and Proc. Manchester Lit. and Phil. Soc.*, vol. lxx, No. 10.)

² "Contributions to the History of Mummification," *Proc. Roy. Soc. Med.*, vol. xx, 1927, pp. 832-54; "A Mummy from the Torres Straits," *Ann. Arch. and Anthropol.*, vol. xi, Liverpool, 1924, pp. 87-96.

FR. HAMLYN HARRIS published a series of photographs of specimens in the Brisbane Museum, but his comments on them were of the briefest.¹ Our most convenient source of information upon Australian burial customs is the memoir of Dr. Walter E. Roth, who collected all the evidence available to him, relating to the inhabitants of North Queensland.² For the south, we have the description of a mummy from the district of Adelaide, published many years ago by the late Sir William Flower.³

It seems evident that the custom of mummification in Australia was superposed upon a complex and curious system of beliefs relating to the dead. Dr. Roth's interesting memoir makes it quite clear that death was generally supposed to be the result of some malign influence imparted by the living, and the treatment of the corpse and many ritual customs connected therewith had for their principal objects the avenging of the dead and the protection of the living. The death of a tribesman imposed upon his survivors the duty of identifying the person to whose influence that death was due. This process of identification involved the enactment of a diverse series of rites which often necessitated that the corpse should be preserved until the whole of the ceremonies were completed, and these ceremonies often extended over a considerable period of time. Until a method of preserving the entire body had been learned, the skull, or certain bones, did duty for the whole body, the rest of which, with many local variations, was either eaten, buried, or cremated.⁴ In some districts these more primitive methods have prevailed, but in others mummification took a hold, as it provided a means of retaining the whole body to bear witness against the culprit to whose influence the death was supposed to be due. The Australians had not the skill, nor did their beliefs render it necessary, to convert the body of a dead man into his own statue. The Torres Straits islanders fixed their mummies to a rectangular framework, so as to keep them in an erect position, painted them red, provided them with artificial eyes, and decked them with their nose-sticks and other ornaments in order to impart a life-like appearance to the corpse, and to render it a fitting abode for the spirit. The Australians had no such motives: their main object was to preserve the body in as portable a form as possible (for camp was often shifted from place to place during the funerary ceremonies), and they therefore flexed it sharply and bound it into a compact bundle. In some districts the viscera were removed through an incision in the left flank, and the body was placed on a rough platform, built of poles and covered with a roof of boughs and grasses. The methods of the Torres Straits had some influence upon corpses treated in this manner, for the body was decorated and adorned

¹ *Memo. Queensland Mus.*, vol. i, Brisbane, 1912, pp. 7 ff., and pls. iv-xi.

² "North Queensland Ethnography, Bull. No. 9: Burial Ceremonies and Disposal of the Dead," published in *Rec. Austral. Mus.*, vol. vi, Sydney, 1907, pp. 365-403, and pls. lxviii-lxxiii.

³ *Journ. Anthropol. Inst.*, vol. viii, London, 1879, p. 393, and pl. xii.

⁴ Cf. Spencer and Gillen, *Across Australia*, London, 1912, vol. ii, pp. 433 ff., and fig. 322. Spencer, *Native Tribes of the Northern Territory of Australia*, London, 1914, pp. 255 ff.

during its sojourn on the platform.¹ It was then desiccated and doubled up, ligaments of cane, net, or cord being drawn tightly about it, so as to compress it into the smallest possible compass.

There are many variant methods of treating the body, and some account of these will be found in Dr. Roth's memoir. It is evident that some of these practices are degraded forms of mummification. Such, for instance, is the method of unflensing the skeleton by provisional burial, and then arranging the bones and binding them up in a sheet of bark-cloth to simulate the bodies prepared by desiccation.² I have examined a number of these "mummies," and have usually found that most of the bones have been preserved, and it is evident, therefore, that the body was disinterred and packed before decomposition had entirely destroyed the ligaments.

At first sight there appears to be nothing in the various methods of Australian mummification that even remotely resembles the advanced technique of the Egyptians, nor even its more degraded, but still efficient, survival in Torres Straits and elsewhere. A fuller study, however, of Australian burial customs reveals some remarkable features that seem unmistakably to betray an external origin. These we will consider one by one:—

- (a) Mummification was practised even when the corpse was destined for cremation or some other form of destruction.
- (b) Elaborate pains were often taken to remove the whole of the epidermis from the body, although the body was subsequently dismembered or burnt.
- (c) The body, during its treatment, was laid upon a roof-covered platform.
- (d) The body was painted with red ochre, and an attempt was sometimes made to give a life-like appearance to the face by painting the shrunken eyes.

With regard to (a), the gratuitous adoption of artificial means to preserve from decay a body which was destined immediately afterwards to be burned or dismembered suggests that the custom was borrowed and followed as a mere ritual practice that had neither a utilitarian purpose to serve, nor could it have been prompted by the motives that originally gave rise to the art of embalming—*i.e.* to preserve the corpse indefinitely from decay, and to perpetuate the identity of the individual. A parallel instance is provided by Burma, where the bodies of royal personages and priests are elaborately embalmed and then cremated.

The removal of the epidermis (b) was the *consequence* of one of the principal stages in Egyptian embalming. In order to get rid of the fatty ingredients of the body and to preserve the tissues, the Egyptians macerated the corpse for a long period in a strong saline solution. In the course of this maceration the epidermis peeled off the whole body. In order to preserve the nails, special precautions were taken, and the head was not submerged at all, as I have attempted to prove elsewhere.

¹ Roth, *op. cit.*, pls. lxxi, lxxii.

² Hamlyn Harris, *op. cit.*, pls. viii, ix, xi. Spencer and Gillen, *Across Australia*, vol. ii, fig. 342.

for the body was doubled up and placed in a jar that was filled with brine to the level of the neck.¹ Now, in other places where the same technical processes as used by the Egyptians were employed, notably in the Canary Islands and Torres Straits, this immersion of the corpse in a saline bath was not carried out, yet the local embalmers nevertheless carefully scraped off all the epidermis from the trunk and limbs (which they washed with salt water² and paid special attention to the treatment of the nails.³ In other words, they perpetuated a custom that for them had neither purpose nor use, a clear indication that the practice was borrowed from elsewhere. We shall meet with this detail, *i.e.* the removal of the epidermis, again when discussing mummies from South America.

In view of the above, it is most interesting to observe that amongst the Australian tribes the epidermis was completely removed from a corpse about to be buried or cremated by the natives of the Bloomfield River district⁴: that in the Lower Tully River district the body was taken to the water and all the outer skin and hair removed:⁵ and that in the district of Brisbane the body was divested of all the hair and outer skin by singeing followed by rubbing.⁶ In none of these cases was any useful purpose served by thus denuding the corpse of its cuticle, and it is quite evident that the custom is a survival of a part of the ritual of embalming that was practised more completely elsewhere.

The use of the covered platform (*c*) on which the body was placed during its treatment and desiccation has a wide geographical distribution. The late Dr. Rivers held the view that "exposure of the dead on platforms is only a survival of preservation in a house."⁷ I think, however, that we may go further, and look for its origin in Egypt. The practice is associated throughout its wide range with the custom of mummification or some other method of *special* treatment of the body.⁷ I have pointed out in a recent article⁸ that the common belief that regular "embalmers' workshops" or "embalmers' laboratories" were maintained in Egypt is entirely without foundation, but that a special kiosk or temporary structure was erected for each person in which to carry out the various manipulative processes as well as the ritual observances of mummification: for the latter the mummy was laid on a bier. This structure having served its purpose, was then dismantled. It is, therefore, suggestive in the highest degree that the use of funerary biers, with or without roofed platforms, is a survival of the Egyptian embalmer's kiosk. An attempt has been made to explain away the function of these ceremonial beds or biers by the assertion that

¹ *Journ. Egypt. Arch.*, vol. xiii, 1927, p. 41.

² *Proc. Roy. Soc., Med.*, vol. xx, 1927, p. 839.

³ Roth, *op. cit.*, p. 386.

⁴ *Ibid.*, p. 390.

⁵ *Ibid.*, p. 399.

⁶ *History of Melanesian Society*, Cambridge, 1914, vol. ii, p. 273.

⁷ Rivers, *op. cit.*, p. 269.

Journ. Egypt. Arch., vol. xiii, 1927, p. 41.

many primitive peoples regard death merely as sleep (this, in itself, is far too sweeping a generalization), and that it is therefore natural that the corpse should be laid upon a bed in an attitude of repose. This "explanation" takes no account of the fact that funerary biers are employed by certain peoples who do not use bedsteads in ordinary life.¹

We now come to the last point (*d*). Professor Elliot Smith has shown that in Egypt during the Twenty-first Dynasty it became the custom to paint the mummy with red ochre, or, alternatively, to dye the innermost wrappings red. The former method was adopted in Torres Straits² and elsewhere, and the latter in the Canary Islands,³ and we shall presently see that red pigment was associated with mummies in America. It is, therefore, not without significance that Australian mummies from Queensland often bear traces of red pigment,⁴ and that the South Australian mummy described by Flower had been painted all over with red ochre.⁵ With regard to the treatment of the eyes, reference has already been made to the fact, first pointed out by Elliot Smith,⁶ that the Egyptians from the earliest times had two principal objects in view in embalming their dead: the first was preservation of the body from decay; the second, the perpetuation of the personal identity of the deceased. In the Pyramid Age the latter purpose was accomplished by painting the features of the dead man on the outer wrappings of the head. From this crude beginning was evolved the cartonage mask in the Middle Kingdom, then the anthropoid coffin, and finally the portrait-panels of Roman times. The actual eyes of the mummy shrunk and collapsed into the orbits, and it was usual to place pads of linen in front of the eyeballs and to pull the lids down over this packing material. During the latter part of the New Kingdom mummies are sometimes found in which the eyelids were only half-closed, and an attempt had been made to represent the eye by means of paint applied to the linen packing, and in one case (the mummy of the Twentieth Dynasty Pharaoh, Rameses IV) "in front of each collapsed eye a small onion had been pushed under the eyelids to simulate the real eyes. The effect was more successful than one might imagine possible."⁷ In the Twenty-first Dynasty these sporadic experimental methods were superseded by the regular custom of inserting under the eyelids artificial eyes made of white stone, with an inlay of black stone to represent the iris. All the Torres Straits mummies have artificial eyes exactly resembling those of the Twenty-first Dynasty mummies of Egypt, and mummies from other localities have been found with artificial eyes, cowry-shells

¹ For the type of burial platform used in India, Formosa, Borneo, New Guinea, Solomon Islands, and elsewhere, see *Journ. Anthropol. Inst.*, vol. xxii, 1893, pl. xiv, fig. 1.

² *Ann. Arch. and Anthropol.*, vol. xi, pp. 87 ff.

³ *Proc. Roy. Soc. Med.*, vol. xx, p. 837.

⁴ *Zeitschr. für Ethnol.*, 1905, p. 781.

⁵ Flower, *op. cit.*, p. 393.

⁶ *Journ. Egypt. Arch.*, vol. i, 1914, p. 193; *Migrations of Early Culture*, pp. 38, 40.

⁷ Elliot Smith, *The Royal Mummies*, Cairo, 1912, p. 88.

sometimes being employed for the purpose. The Australians had not the skill to fashion artificial eyes, but they sometimes filled the orbits with packing material, and indicated the pupil by means of pigment. (See Pl. VIII, Fig. 3.)

The evidence afforded by any of the above-mentioned points, taken singly, amounts to little; but, cumulatively, the indications they afford of ultimate derivation from Egypt cannot be ignored, especially when considered in relation to the various ritual observances described by Dr. Roth (*op. cit. supra*) and others. The striking, and quite indubitable, points of resemblance with the technique of Egypt afforded by the mummies of Torres Straits islands are not to be looked for in Australia, where the custom of embalming appears to have been superposed upon, though it did not supersede, a crude and complex and very variable series of existing customs.

I reproduce here photographs of three Australian mummies. The first (Pl. VIII, Fig. 1) is that of an adult male from Trinity Bay, Queensland. The body is tightly compressed and bound with cord, the hands being placed upon the cheeks.¹ The second is the specimen (Pl. VIII, Fig. 2) formerly in the Museum of the Royal College of Surgeons, London. It was unfleshed in 1878 and mounted as a skeleton. A photograph had been previously taken, and this was published by Flower, and is now reproduced from the original print by kind permission of Sir Arthur Keith. The body is in a squatting attitude, but in a position impossible for the living body to assume. The thighs are bent upwards by the sides of the body, and forced into such a position that the knees are actually behind the shoulders. The mouth is stuffed with feathers and sewn up, the nostrils and anus are also sewn up, and the prepuce is pulled over the glans and tied with a thread. From these precautions, it is evident that the embalmer's object was to close effectively all the natural openings of the body.² A broad band of netting is tied round the body and limbs to retain them in position. This mummy, as already mentioned, was painted with red ochre.³ The third photograph represents a North Australian mummy (Pl. VIII, Fig. 3). The body is in a position of extreme compression, and is bound with a series of lashings of lawyer-cane in a form which renders it portable. This mummy must be that of a man of importance, as Dr. Roth says "desiccation is a form of disposal of the dead practised only in the case of very distinguished men. After being disembowelled and dried by fire, the corpse is tied up and carried about for months."⁴ The eye-sockets have been filled with a white paste (probably gypsum) on which the pupil is indicated by means of pigment, and

¹ This specimen has already been figured by Hamlyn Harris (*op. cit. supra*), with several others in the Queensland Museum. There is a mummy of a child, similarly prepared, also from Queensland, in Hamburg Museum. It is figured in Ploss, *Das Kind*, 3rd ed., Leipzig, 1911, p. 569.

² It was customary in Egypt to plug the mouth, nostrils, and anus, and often the ears also. The embalming-incision was closed with a metal or wax plate, or more rarely sewn up. In the case of women the *rinnu pudendi* was usually plugged or otherwise closed.

³ According to R. Brough Smyth, *Aborigines of Victoria*, vol. i, p. 113, it was the custom also amongst the Encounter Bay tribe of South Australia to sew up the apertures of the corpse.

⁴ Roth, *op. cit.*, p. 393.

bands of pigment can be seen on the legs. A North Australian mummy was figured and briefly described by Klaatsch in 1905; this specimen also was painted red.¹ It may be mentioned in passing that the ceremonies and beliefs connected with the making of medicine-men by the Arunta are strangely reminiscent of the embalming and reanimating of the mummy by the Egyptians. The candidate lies down and sleeps at the mouth of a magic cave, and during his slumber it is believed that he is killed by invisible arrows, and his corpse is then carried into the cave by its spirit-denizens (the Iruntarinia), who remove all the viscera and supply the body with a completely new set, after which the candidate is reanimated.²

II.—AMERICA.

The practice of mummification has been recorded from various parts of North, Central, and South America. Yarrow, in his monograph on the mortuary customs of the North American Indians,³ records mummification from Alaska,⁴ Virginia, North and South Carolina, Florida, and Kentucky. Hough figures two mummies from the Upper Gila River region of Arizona and New Mexico.⁵ According to Reutter, the list may be extended to include the inhabitants of Darien in Colombia, the Musicas, the Aleutians, and the peoples of Yucatan and Chiapa.⁶ Specimens have also been found in Don Juan County, Utah (*vide infra*).⁷ In all the above localities embalming appears to have been reserved in the main for chiefs and persons of great distinction, but further south, in Peru and Bolivia, the custom was democratized and employed more generally. Yarrow (*op. cit. supra*) quotes a number of early writers (eighteenth and early nineteenth centuries), from whose accounts it appears that evisceration and desiccation by fire-heat were the principal processes of the North American embalmers. The finished mummies were placed in a sitting posture, covered with decorations, and dressed in costly garments. Yarrow, in giving his quotations, does not vouch for them, and warns his readers not to take them too literally. It seems extremely unlikely, however, that so many entirely independent writers should be seriously wrong when their accounts agree in all essential respects, and the information they contain has received the confirmation of others.⁸ Unless we have good reasons for rejecting such testimony,

¹ *Zeitschr. für Ethnolog.*, 1905, pp. 772 ff. and pl. ix.

² Spencer and Gillen, *The Arunta*, London, 1927, vol. n, pp. 392 ff.

³ *First Annual Report of the Bureau of American Ethnology*, Washington, 1881, pp. 89-199. Mummification is dealt with at pp. 130-7.

⁴ Yarrow's fig. 5 represents two mummies from Alaska. One is wrapped in cloth and netting, the other is unwrapped and resembles the Inca mummies of Peru. (See also *L'Anthropologie*, t. vii (1896), p. 501.)

⁵ *Smithsonian Inst. U. S. Nat. Mus.*, Bull. No. 87, Washington, 1914.

⁶ *L'Embaumement avant et après Jésus-Christ*, Paris, 1912, p. 142.

⁷ Since this memoir was completed, I have obtained further information and some new localities. (See postscript, below, p. 137.)

⁸ Reutter, *op. cit.*, p. 142.

the law of historical evidence compels us to admit it. It seems to me that the quotations given by Yarrow should command as much respect as other travellers' and explorers' testimony, upon which we rely for a large part of our information on every branch of cultural anthropology. The climate and conditions of burial are often entirely unsuited to natural desiccation, such as is produced by inhumation in the hot, dry, desert sands of Egypt: and, indeed, the usual method of burial in caves, where the body is exposed to atmospheric influence and to the attacks of insects, usually directly favours decomposition, unless specific artificial measures are taken to prevent it. There is, therefore, every reason to credit the statements quoted by Yarrow and others that the bodies of the North American Indians were rendered durable by evisceration and artificial desiccation by fire-heat, methods that we know to have been employed in many other parts of the world. Although no details of the technique of embalming of the two infantile mummies from Tularosa Cave and Gila Cliff-dwelling are given by Hough (*op. cit. supra*), an examination of the photographs, one of which I here reproduce (Pl. IX, Fig. 1), as well as the conditions under which they were buried, strongly suggests the fact that they must have been preserved by artificial means.

Through the kindness of Mr. L. E. Young, of Salt Lake City, I am able to publish here photographs of two of a series of mummies in the museum of that city, which were obtained from caves in San Juan County, Utah (Pl. IX, Figs. 2, 3). Mr. Young was good enough to answer a number of questions that I put to him concerning the details of these mummies. It appears that they show no trace of having been eviscerated, nor was the epidermis removed, but they bear evidence of having been suspended and smoke-dried. They were found covered in wrappings of cloth and decked with ornaments. There was apparently no trace of pigment on the bodies, although the Indians in the southern part of the State affirm that paint was used in burying the dead. The mummy of a chief lying in the fully extended attitude is particularly interesting, for the hands (with fingers extended) are placed over the pudenda, which was a frequent custom in Egypt during the Twenty-first Dynasty (and also for a time during the Eighteenth). As in the case of Egyptian mummies, the left hand was placed above the right¹ (Pl. IX, Fig. 3).

With regard to South America, the mummies from Peru, Bolivia, Ecuador, and Northern Chili have been obtained in great numbers, and although anything like a complete description of the technique of embalming is lacking, we have a certain number of reliable, if incomplete, accounts of mummies, and a considerable series of actual specimens upon which to base our observations.

It is persistently stated in ethnographical and anthropological books that the preservation of Peruvian mummies is due to the unaided forces of Nature, and

¹ In the Canary Islands also, where the technique of mummification exactly resembles that of the Twenty-first Dynasty Egyptians, this arrangement of the hands is also to be observed. (Cf. Dawson, *Proc. Roy. Soc. Med.*, vol. xx, 1927, p. 838, and fig. 1.)

that no artificial means were employed with a view to preserving them. Whilst it is true that many mummies have been found buried in sand or in nitrous soil, a method of burial that favours preservation, the above statement is far too sweeping, and ignores the fact that a large series of mummies has been recovered from localities with unfavourable climatic conditions, from caves, from tombs built of brick or stone, and from other situations that are not only unfavourable to preservation, but which would actually promote decomposition. A careful study of the literature of the subject, as well as the actual examination of mummies, makes it abundantly clear, in many cases at least, even if we admit the possibility of natural desiccation in some instances, that artificial methods of embalming have been resorted to. In Peru, as elsewhere, the elaboration of the embalming was in accordance with the rank and wealth of the deceased, and the more elaborate the wrappings and equipment of the burial might be, the more need there was of efficient artificial preservation. Bodies of poor persons interred without wrappings, or only with scanty coverings, by direct inhumation in dry sand, stood a far better chance of preservation than those of wealthy persons buried in spacious tombs and free from contact with the desiccating sand. The examination of mummies themselves will convince any unprejudiced observer that desiccation by fire-heat is the principal agent to which we owe their preservation, and that in some cases also the bodies were eviscerated and treated with preservative materials.¹

The fullest discussion of Peruvian mummification that I have been able to find is that contained in the fine monograph of Rivero and Tschudi.² The authors admit that in the case of kings and queens elaborate artificial methods of embalming were probably employed, but that such methods were reserved for royalty and were kept secret. Prescott describes the embalming of the Inca princes, and Garcilasso and Acosta also tell us that perfectly preserved mummies were prepared by the Incas with a result which surpassed that attained by any other nation. The authors give an extract, from an account of Francisco Barreda, of Peruvian mummification, which reads as follows:—

“ Los profesores ejectionaban la operacion de varios modos. Imitando á los antiguos Egipcios extraian el cerebro por las narices, convenciéndolo así la falta del pequeño hueso que separa las ventanillas y la fractura hecha en la sutura que une á este con el coronal, facilitando el paso á lo interior del cráneo. Conservaban otras veces este pequeño hueso faltando enteramente el cerebro, sin notar reliquia capaz de manifestar la corrupcion que podia haber producido,

¹ According to Paul de Marcoy, *Voyages de l'Océan Atlantique à l'Océan Pacifique à travers l'Amérique du Sud*, 1862 (quoted by Reutter, *op. cit.*, p. 144), the preservative material employed was *Chenopodium ambrosioides*. Boman, who repeatedly states that Peruvian mummification is due solely to natural forces, admits that in some cases bodies have been eviscerated and desiccated by fire-heat (*Anales de la Soc. Científica Argentina*, t. lxxxv, p. 99).

² M. E. de Rivero and J. D. de Tschudi, *Antigüedades Peruanas*, Vienna, 1851: text-vol., 4to, pp. 202-8: pls-vol., fol., pls. 1-6.

si lo hubieran dejado sin tocar, convenciéndose de aquí que proyectando buenos conocimientos en anatomia hacian sus estracciones de este órgano de diferentes modos y por distintos lugares. Les sacaban los ojos, como compuestos de partes muy corruptibles, llenaban las orbitas de algodón y otras materias ingeniosamente colocadas que disimulaban la falta cuando les juntaban los párpados : todo ejecutado con primor sin alterar las facciones de la cara aquel aire que tuviesen en el estado de la vida.

“La lengua con todas sus partes era arrancada con el pulmon por una pequeña cortadura hecha del ano al pubis : despues de vaciar por él todos los intestinos, quedando el vientre inferior y pecho libres de las partes que podian ser putrecibles. La capacidad de ambas regiones la llenaban de un polvo sutil, color de higado que exhalaba un ligero olor á trementina en el instante que se sacaba, y se pierde despues de un rato de puesto en contacto con el aire libre. Absuerve la humedad, hace una paqueña efervescencia en el agua fria : presumiendo por estos datos que la composicion parece hecha de resina de molle, cal y alguna tierra mineral. Les unjian la cara con liquido oleoso, color de naranja, cubriéndola despues con algodones, unian ántes las manos á las mejillas, las rodillas al pecho dejando de la parte de afuera los codos ; sujetando los miembros con fajas hasta que tomaban la apetecida posicion.”¹

Rivero and Tschudi dismiss this account as a “fantasia del Señor Barreda,” and state that in the mummies they discovered there was no trace of any of the manipulations referred to in Barreda’s statement. We shall see, however, that this wholesale dismissal is not justified, for in the sequel it will be shown that mummies have been found in which the pelvic viscera had been removed *per anum* by incising the perineum, and that in some cases also resinous and oily preservatives had been employed. Personally, I have never found any evidence that the brain had been removed either by the nostrils or otherwise, nor can I find any reference to this procedure in any published account of Peruvian mummies, except in the case of certain pre-Inca mummies mentioned below. It must be remembered, however, that mummification was practised over a very large area in South America, and there is evidence that the technique of embalming varied in certain details in different localities and at different times. While there is as yet no positive evidence of the removal of the brain (although the condition of some of the mummies found by Dr. Hrdlička suggests that the brain may have been extracted (*vide infra*)), the possibility is not excluded that in some cases, at least, such methods may have been resorted to, unless we suppose that Dr. Barreda’s account is a pure fabrication, a supposition for which we have no warrant.

The authors go on to state their conviction that the preservation of mummies in Peru is solely due to the climate and to the nature of the soil, a view which at

¹ M. E. de Rivero and J. D. de Tschudi, *ibid.*, pp. 205-6.

first sight appears reasonable, having regard to the local nature of these factors, but against which, as we shall see, weighty objections can be raised.

The same view is taken by Reiss and Stubel in their splendid monograph on the necropolis of Ancon,¹ in which the magnificent series of coloured plates displays the many-sided and advanced culture of the Incas. It is much to be regretted that the numerous mummies discovered in the course of the excavations apparently were not submitted to any somatological examination: all that was done in this direction was the purely craniological study of some of the skulls by Virchow. Perhaps the explorers, having the preconceived notion that the mummies were preserved by the unaided forces of Nature, considered such examination of the mummies needless. Although no reference to the fact is made, nor even implied, the conditions under which many of these mummies were interred, to my mind, can leave no room for doubt that the bodies were artificially dried before they were invested in their wrappings and deposited in the graves. It is stated that "soon after death the body was brought to the squatting attitude. By means of bandages the knees are drawn close to the upper part of the body, the fingers and toes bound with soft strings,² and the long hair made fast with straps or fillets. But while the poorer classes, that is, the great bulk of the people, had to be content with plain cotton cloth for sewing up the bodies, a sumptuous equipment was provided for members of distinguished families."³ The preservation of the bodies is attributed to the same causes as apply in Egypt, *i.e.* a dry climate and inhumation in dry sand. But the conditions of burial are not in reality quite similar. It is perfectly true that in Egypt predynastic bodies have been preserved entire by direct inhumation in the sand, and in this connection Professor Elliot Smith has written:—"There is the somewhat paradoxical fact that the body of an ancient Egyptian is hardly ever presented to us in a more excellent state than in some of the predynastic graves—but the preservation is the result, not of art, but of the operation of natural agencies. The corpses of these archaic people were placed directly in the dry sand and completely covered up, so as to shut out all access of air: as the result, in many cases they became desiccated and perfectly preserved. But in later times the body was put into a burial-chamber containing a considerable quantity of air, which favoured putrefaction and other processes of disintegration, even when the body had been mummified."⁴ Even in predynastic cemeteries where graves lined with mud-bricks or covered with a wooden roof were employed (which prevented the direct contact of the desiccating sand with the body), the tissues entirely disappeared, and nothing

¹ *The Necropolis of Ancon in Peru: a Contribution to our Knowledge of the Culture and Industries of the Empire of the Incas.* By W. Reiss and A. Stubel, translated by Professor A. H. Keane. Berlin, 1880-7. 3 vols. of pls., fol., with descriptive letterpress interleaved.

² This detail is significant (*vide infra*).

³ Reiss and Stubel, *op. cit.*, introductory letterpress to pls. II-30.

⁴ "Notes on Mummies," p. 5 (*Chim. Sci. Jour.*, vol. II, Feb., 1908).

but the skeleton remains. The same result followed in cases where the body had been closely wrapped in skins or mats. In illustration of this fact, it is only necessary to inspect the innumerable illustrations or predynastic burials in the works of De Morgan, Reisner, Petrie, and others. Now, these Ancon mummies were completely wrapped in an extensive series of coverings, which were closely applied and tightly bound with cordage, and the wealthier burials were made in small lateral chambers leading out from a vertical burial-shaft.¹ and even in such cases as involved the use of a simple shaft, pieces of pottery, wood or matting were placed over the mummy to prevent its being embedded when the shaft was filled in. Such precautions, of course, could not have lasted long, but quite long enough to allow the body to reach an advanced stage of decomposition before it became completely enveloped in sand, unless it had been previously desiccated. Moreover, the very thick layers of wrappings would even then have entirely insulated the body from the desiccating action of the sand.² Moreover, the wrappings fit closely to the diminished contours of the shrunken corpse, and these facts together seem to me to prove beyond all reasonable doubt that the body was desiccated by artificial means before the wrappings were applied. We shall have occasion to refer again to these Ancon mummies.

In Prescott's well-known account of the embalming of the Inca chiefs, it is definitely stated (on the authority of Cieza de Leon and of Garcilasso) that the body was eviscerated. As, moreover, the bodies were kept in the Temple of the Sun at Cuzco, clothed in their robes and exposed to the air, it is evident that they must have been carefully and efficiently embalmed.³ A Peruvian mummy in the Anatomical Museum of Manchester University was examined by Professor Elliot Smith, and this was found to have been eviscerated through a large incision extending across the trunk. The vacant body-cavity was packed with wool, and a cloth, impregnated with resin, stuck over the incision.⁴ Dr. Hrdlička, in his report on an anthropological expedition to Peru, states that "the mummies were not only artificial as to their exterior, but there appeared evidence that the bodies themselves, or at least some of their parts, had been specially treated; thus a number of skulls, for the most part such as were damaged by wounds, were found filled with cotton."⁵

To these accounts I can add some direct evidence of artificial preservative measures from the examination of a series of actual mummies. Of the first of these, which I examined in 1924, I have already published a full description, to which the reader is referred for details,⁶ but it may here be mentioned that the body had been

¹ Reiss and Stübel, *op. cit.*, pl. 10, shows sections of various types of grave.

² See *ibid.*, pl. 30, fig. 1, which shows a section through the great multiplicity of wrappings.

³ *History of the Conquest of Peru*, book i, ch. i.

⁴ *Migrations of Early Culture*, p. 112.

⁵ *Smithsonian Misc. Coll.*, vol. lvi, Washington, 1911, No. 16, p. 5.

⁶ *Proc. Roy. Soc. Med.*, vol. xx, 1927, pp. 845 ff.

partially eviscerated *per anum* and the whole surface treated with a preservative material. A photograph of this mummy, which is in the British Museum (Natural History), London, is reproduced in Pl. X, Fig. 1. I will now add detailed descriptions of three mummies which I have recently had an opportunity of examining.

The first is a specimen in the Anatomical Museum of Edinburgh University, and by the courteous permission of Professor Arthur Robinson, Professor of Anatomy in the University, I made a complete examination of it on April 21st, 1927. The specimen was discovered in 1883 near Iquique, Chile, by Captain Allan Porter, of the "Harrington" of Arbroath. It was deposited for a time in the Museum of Arbroath, and in 1891 was handed over to the late Sir William Turner for the anatomical collection at Edinburgh. A letter giving full particulars of the discovery is preserved in the Museum.

The body is that of an adult woman in a contracted position, but the attitude differs from that usually assumed by Peruvian mummies.¹ The scalp retains abundant light-brown hair, which is parted in the centre and arranged in two long plaits which hang from above each ear. The face has been painted with a bright-red pigment, and traces of red pigment are visible on other parts of the body. There are well-marked impressions of woven cloth on all parts of the body, which show that it was originally completely wrapped up. In the museum case is preserved a large piece of this cloth, which is of fairly fine texture and has a marginal fringe with a woven border in blue. The nose has been completely flattened and the mouth distorted by the pressure of the wrappings, and three teeth are exposed. The head is very high-crowned and flattened at the back, and the features present a somewhat Mongoloid appearance. The breasts were originally very full and pendulous, and although they are now flattened on the wall of the chest, their appearance suggests that the woman may have been lactating at the time of her death. The pelvis is broad, and the hands and feet small and delicate.

The body lies upon its back with the head inclined towards the left shoulder. The left arm is flexed at the elbow, so that the forearm passes over the abdomen. The fingers are extended. The right arm is elongated at the side of the body. The pelvis has been twisted on its axis so that the thighs are nearly horizontal, the left thigh is above the right, but the tibiae are crossed, so that the left foot lies below the ankle of the right. The toes are bent, and their position is due to the contraction of the muscles of the legs during desiccation. The legs are so bent that the heel of the right foot touches the buttocks. The abdomen has completely collapsed, partly owing to desiccation and partly to the fact that most of the pelvic viscera have been dragged out through the anus, and the mass of tissues thus extruded from the perineum was then chopped off. In the remains of this extruded tissue the cut

¹ Its position approximates (although it is not identical with) those of the Manchester mummy (Fig. 16), and the specimen figured by E. Boman, *Anales de la Soc. Científica Argentina*, t. lxxxv (1918), pp. 94 ff., fig. 1.

edges of the muscles can be discerned. The genital organs are intact and not deformed, as the *labia minora* are distinctly visible between the *labia majora*. There is no trace of pubic hair. The whole body has been plastered abundantly with some gum-like resinous material mixed with oil of a strongly aromatic smell, and which is deliquescent. The deliquescence is doubtless due to the fact that the mummy has been for many years exposed to the uniformly warm temperature of the museum gallery. The shrunken form of the body shows that slow artificial desiccation had been resorted to, and this fact, together with the abundance of preservative material, and the partial evisceration of the trunk, place beyond all doubt the fact that the body was not naturally desiccated by mere inhumation, but that it was carefully and elaborately embalmed.

The next two specimens which I have to describe in detail are in the Wellcome Historical Medical Museum, London, where I carefully examined them on September 10th, 1927, by the kind permission of Mr. Henry S. Wellcome, the Director (Pl. XI, Fig. 4; Pl. XIII, Figs. 1, 3, 4.) Both mummies came from Maracaibo, Venezuela, but nothing further appears to be known of their history. They are both adult males, and it will be convenient to label them A and B, respectively, in describing them. Both have abundant long dark hair firmly rooted in the scalp; in A the hair is flowing, in B it has been braided with a plaited cord, and hangs in a cylindrical bundle over the forehead. Both bodies are in a sharply contracted sitting position. In A the knees are drawn up in such a way that the right knee is higher than the left, and the right foot is placed diagonally over the left, with the toes bent downwards. The right shoulder is elevated, and the head is bent towards the left and forwards, so that it hangs over the chest. Both A and B have their ear-lobes pierced, and in the right ear of A is a black turtle-shell ring on which are threaded two white discs of shell. The lips are retracted, and expose perfect teeth in the case of A and much-worn teeth in the case of B. In neither case is there any passage into the cranial cavity through the ethmoid bone, although the nostrils are widely dilated. B, owing to injury sustained in transit, has the parietal region of the skull smashed, and through the aperture the shrunken remains of the brain and the dura mater can be seen collapsed on the floor of the cranium: the walls of the skull are remarkably thin. In both cases the skin generally is wrinkled and baggy, and the epidermis has been scraped off the body and limbs, but is retained on the soles of the feet and on the fingers and toes, where it has a sharply cut edge. In A the removal of the epidermis has been less thoroughly carried out than in B, for small irregular patches have been left adhering to various parts of the body, principally on the buttocks and legs. In A the nails are all intact, but in B a few of them have become detached and lost. Generally speaking, B is in better condition than A, for the skin is entire, whilst that of A is punctured in many places, presumably by insects, and the whole of the integuments have come away from the upper part of the feet and the lower part of the legs, leaving only the muscles and exposing the bones. A has been eviscerated *per anum* by incising the perineum,

and the whole of the abdominal viscera removed, the anus now appearing as a gaping hole 8–5 cms. in size. The diaphragm is *in situ*, although it is punctured in several places. B has not been treated in this way. Both bodies are marked all over with the impressions of woven cloth, and both have bands composed of many turns of thin string around each leg below the knee and above each ankle. In addition to these, B has the legs tied together at the ankles and the hands at the wrists by a plaited cord, and a finer cord has been passed round the back and the legs, and this has left deep impressions in the skin. Both bodies are marked in many places by a reddish stain: this is perhaps due to the action of a red-dyed cloth originally covering them. In both cases the genital organs are preserved. In A the condition of the penis suggests that it has been circumcised, and in B this appears to be quite unequivocal. The scrotum has been flattened behind the heels which press against it. There is no trace of pubic hair. The position of the limbs differs slightly in the two mummies. In B the legs are parallel, and the feet quite flat and placed side by side. In A the right arm is flexed, so that the half-open hand is placed in front of the chin: the left arm crosses above the right, the hand being turned downwards over the right knee. In B the right hand is closed, and it is placed on the left cheek: the left hand is open, and is placed over the left temporal region.

The partial evisceration of the body *per anum* in three out of four of the above-mentioned mummies is of great interest, when it is remembered that Torres Straits mummies were often eviscerated by incising the perineum, and that the anal method was also used in Egypt.¹ Equally interesting is the definite evidence afforded by the two Wellcome Museum mummies of the removal of the epidermis from the body, and its careful retention on the fingers and toes.² Reiss and Stübel (*vide supra*) state that the Ancon mummies had strings wound round the fingers and toes, another detail of great interest, when it is recalled that the Egyptians left a natural finger-stall of epidermis on each finger and toe, and wound strings round each digit to retain the nails: precisely the same procedure was followed in the case of Guanche mummies in the Canary Islands.³

In the Museum of the Royal College of Surgeons, London, are the skeletons which formerly belonged to two female mummies which were found at Chiuchiu,

¹ For Torres Straits, see *Reports Camb. Anthropol. Exped. to Torres Straits*, vol. vi, Cambridge, 1908, and my own paper, *op. cit. supra*. For an example from ancient Egypt, see my paper in *Journ. Egypt. Arch.*, vol. xi, 1925, p. 76. Evisceration *per anum* was practised also in other parts of the world.

² I had often before suspected the removal of the epidermis, from the fact that all the mummies I had previously examined had no trace of hair in the axillæ, the pubic area, or on the limbs, even when the hair of the head was well preserved. The condition of the mummies I had examined before seeing the Wellcome Museum specimens did not justify a decided opinion on the matter.

³ Dawson, *Proc. Roy. Soc. Med.*, vol. xx, 1927, pp. 838, 839, and 853. The Peruvian mummy (Pl. X, Fig. 3) in the Milan Museum has strings wound round the fingers, and one of the Utah specimens had a buck-skin string tightly bound round one of the fingers.

Bolivia, and presented to the museum in 1873. Shortly after their arrival they were unflushed and the skeletons articulated.¹ It is most fortunate that, before they were destroyed, photographs were taken of the mummies showing their different points of view, and these are preserved in the archives of the museum. By the kind permission of Sir Arthur Keith, I have been allowed to re-photograph and publish these old and faded records, and I reproduce one of them here (Text-fig. 1, p. 137). One of the mummies is the body of an extremely corpulent woman, which must have decomposed very rapidly had no artificial means been employed to desiccate it. A very considerable degree of heat applied over a long period must have been necessary in order to effect the complete shrinkage of the enormous masses of adipose tissue which once distended the skin which now appears as a deflated carapace in deep wrinkles. During the treatment, two strong cords were passed round the body to hold it in position, and these have left deep furrows across the thighs and shoulders. The head has fallen forward on to the chest, the cheeks being puffed out and the whole face assuming a grotesque orang-utang-like appearance. The body is not in the usual attitude of compact compression, possibly because it was impracticable to truss up the limbs in the customary manner owing to their extreme corpulence.² The hair of the head has been cut short, and a long plaited tress of it passed round the neck.

On March 24th, 1927, I had an opportunity of examining two mummies in private ownership in London, which had been obtained at Tiahuanaco, a well-known megalithic site in Bolivia, west of La Paz (Pl. XI, Fig. 3). The mummies, of an adult and of a child, respectively, have been desiccated and tightly compressed, and they are completely enveloped in a compact covering of woven cordage, with the exception of a square opening which exposes the face. Rivero and Tschudi refer to mummies wrapped in exactly this fashion, and state: "En los sepulcros del alto Perú se encuentran momias en esteras de totora, muy parecidas á las colmenas con una abertura cuadrada del lado de la cara."³ In the case of the mummies examined by me, it is evident that the covering had been put on after the bodies had been dried and had fully shrunken, for it closely embraces the contours of the shrunken form of the corpse. Here, again, we have evidence of artificial desiccation, for had the bodies been invested in their coverings immediately after death, the subsequent shrinkage or decomposition of the tissues would have left considerable free space inside the coverings.

An interesting account of three Peruvian mummies was given by Dr. Daniel Wilson many years ago,⁴ and as it affords many particulars regarding details which have already been mentioned, as well as points which still remain to be considered, it

¹ Flower, *Rep. of Ill. Surg. Mus., & Zool. Cat.*, part 1, London, 1879, p. 177, Nos. 1013 and 1014.

² It was necessary to vary the current methods of embalmment in the case of exceptionally fat persons in Egypt, whose corpulence gave rise to special difficulties. (See the example in Elliot Smith, *The Royal Mummies*, Cairo, 1912, p. 166.)

³ *Op. cit.*, p. 292.

⁴ *Prehistoric Man*, 2nd ed., London, 1865, pp. 440-4.

is worth while to transcribe it in full, especially as the book in which it appeared is becoming scarce and difficult to obtain. Referring to a collection of Peruvian antiquities representing every phase of local culture, Wilson describes a tomb in which were contained the mummies of a man, of a woman, and of a child, and writes :

"It was obviously a family tomb. The male mummy is that of a man in the maturity of life, in the usual sitting position, with the knees drawn up to the chin. With the exception of a part of the integuments of the lower jaw, the body is in a good state of preservation. On its transference to the humid atmosphere of New England the flesh became somewhat softened, but it exhibits no symptoms of decay. It is dark brown, and possesses a peculiar penetrating odour, somewhat similar to that of an Egyptian mummy.¹ The head is of the common rounded Peruvian form, with retreating forehead, high cheek-bones and prominent nose. The breadth of hand, as measured across the extremity of the metacarpal bones, with every allowance for the contraction produced in mummification, is remarkably small. The hair has undergone little or no change, and differs essentially from that most characteristic feature of the Indian of the Northern Continent. It is brown in colour, and as fine in texture as the most delicate Anglo-Saxon hair. It is neatly braided and arranged, the front locks being formed each into a row on the side of the head, while the hair behind is plaited into a triangular knot of six braids. The parti-coloured woollen garments and wrappings of this mummy are of fine texture : and the head-dress was an oblong-striped hood, and over this a cap formed of woollen threads and surmounted by feathers and an ornament formed of the quills of the condor. A quiver made of the skin of a fox contained five arrows, the shaft of each consisting of two pieces of reed, tipped with sharp-pointed and barbed flint-heads, regularly formed, and attached by a tough green cement. Also suspended to one side by a hair-cord passing over the shoulder was a woollen bag, finely woven in stripes of black, white, and brown, and curiously sewn at the sides with threads of various colours. This contained leaves of the coca, and a thin silver disc or medal, surrounded by a series of one hundred small indentations near the edge and in the centre a space of three-fourths of an inch counter-sunk and perforated with a small round hole. To this a hair-cord of about two feet in length is secured, probably to suspend it round the neck. When the hood was removed from the head, a small earthen vessel with rounded base, and measuring about two inches in greatest diameter, and with the top covered by a membrane, was found secured under the chin.

"The body of the female from the same tomb presents nearly similar characteristics. The hair is shorter and somewhat coarser, but fine when

¹ The prevailing smell of an Egyptian mummy is that of the resins and materials employed in its conservation. This case suggests that mummification is sometimes used in Peru, a fact which we know from other evidence.—W. R. D.

compared with that of the Northern Indians. It is of a light-brown colour, smooth, and neatly braided across the upper part of the forehead, then carried backward and secured to each side of the head. The flesh of the legs, from the ankles to the knees, is covered with red paint: and marks of the same pigment are also traceable on the hair and on the outer woollen wrappings, presenting the impress of a hand. Such marks are common on Peruvian mummies: and, taken into consideration along with the small size of the hand, already noticed, they forcibly recall the *Mano Colorado* observed by Stephens amid the ruins of Uxinall."

I omit a passage dealing with the red hands at Yucatan, and resume with the continued description of the mummy¹:—

"Upon removing the outer wrapper of the female mummy, a wooden comb, a pair of painted sandals of undressed skin, a package of rutile or oxide of titanium, and other articles, were found beneath. In addition to those, the tomb contained many other objects, such as ears of maize, leaves of coca, a roll of cotton-cord, etc., enclosed in bags of fine texture, ingeniously woven of woollen threads, in patterns and devices of various colours, and evidently such as had been in use by their owner. The contents of one of these have a double significance for us. Woven of a peculiar pattern, differing from all the others, and of an unusually fine texture: it was found, on being opened, to contain a small bead of malachite, the only one discovered in the tomb, and locks of human hair secured by a string tied with a peculiar knot. All the hair was of fine texture, of various shades from fine light-brown to black, and to all appearance has undergone no change."

Finally, we come to the description of the child's mummy (p. 444):—

"In the same grave lay the remains of the young infant, carefully wrapt in a soft black woollen cloth, and then enclosed in the skin of a penguin with the feathered side inward.² Fastened to the woollen wrapper was a pair of little sandals, two and a-half inches long. The head was partially covered with a loose cap lined with a wadding of human hair, and cotton stained with red pigment. Within the cap was a large lock of hair resembling that of the female, which, as already described, had been cut short, probably as a sign of mourning, as is still practised by the women of many Indian tribes. Beside it there lay, in a cloth envelope, secured with elaborate care, a brown cord with seven knots,³ and at the end what is believed to be the umbilicus. This is, no doubt,

¹ Wilson, *op. cit.*, p. 443.

² [With this description should be compared the interesting account of the wrappings and garments of the child mummies described by Hough, *op. cit. supra*, p. 133.—W. R. D.]

³ [It is interesting to note that in an Egyptian papyrus containing spells for the protection of children, a cord with seven knots is frequently mentioned. For this, and other instances of the magical value of *seven*, see my paper in *Ægyptus*, vol. viii, 1927, pp. 97-107.—W. R. D.]

the quipu, or sepulchral record, which to the eye of the bereaved mother recalled every cherished incident in her child's brief career. Around its neck was a green cord attached to a small shell: and within the wrappings were several *Littora peruviana*, and also small rolls of the hair of the vicuna, and of cotton, the former enclosing leaves of coca. In another cemetery, several hundred miles to the south of the bay of Chacota, Mr. Blake found many bodies of infants, each enclosed in an oval sarcophagus cut out of a single block of wood: and he also notes the more singular, though frequent, discovery in Peruvian cemeteries of the foetus in all stages of development, and deposited in the grave with the same elaborate evidences of care as expended on the deceased infant. The practice is remarkable, if not indeed unique."

The above long account is particularly interesting for the details it gives of the wrappings and objects deposited with the dead, because in most cases the mummies now deposited in museums have been divested of these objects.¹ The reference to the use of red paint is particularly interesting, and, as we have already noted when speaking of Australian mummies, red is generally associated with mummification. The Edinburgh mummy, described above, had been treated with red pigment, and the head of a Peruvian mummy, with elaborate head-gear, in the Wellcome Museum, has red-painted cheeks (Pl. XIII, Fig. 2). Reiss and Stübel give figures of two mummies whose faces have been painted red,² and in all cases the faces of the "false heads" (*vide infra*) of these mummies are made of red cloth,³ and the outer wrappings of the mummy are usually red.⁴ Pettigrew states, in describing a Peruvian mummy sent to this country a century ago, that it was wrapped in a crimson cloth, "which I am assured by Mr. Brookes, who dug up this specimen is always the colour of the envelope in which the bodies are found."⁵

With regard to the position in which mummies are arranged, it appears that under the Inca civilization the general attitude was a position of sharp contraction. Extended burials have been recorded, but they are the exception, not the rule.⁶ I have examined specimens of mummies of pre-Inca date, and these are lying in the extended position and wrapped in linen bandages. Their general appearance so exactly resembles that of Egyptian mummies, that were it not for the fact that they were collected by a scientific anthropological expedition in Peru, it might easily be imagined that they came from Egypt. I intend at some future date to publish a

¹ See also T. J. Hutchinson, "Explorations amongst the Ancient Burial Grounds of Peru," in *Journ. Anthropol. Inst.*, vol. iii.

² Reiss and Stübel, *op. cit.*, pl. 29, fig. 6; pl. 30, fig. 7.

³ *Ibid.*, pls. 12, 13, 14, 18, 19 and 21.

⁴ *Ibid.*, pls. 15-18.

⁵ Pettigrew, *History of Egyptian Mummies*, London, 1834, p. 238.

⁶ E.g., Pettigrew, *op. cit.*, p. 239. The extended mummy of a child is figured by Reiss and Stübel, *op. cit. supra*, and a photograph of what appears to be the same mummy, now in the Museum für Völkerkunde, Berlin, is given by Ploss, *Das Kind*, 3rd ed., Leipzig, 1911, p. 562.

detailed account of these interesting specimens, but in the meantime nothing more than this passing reference is permissible.¹

In his interesting account of explorations made at Arica and Tacna, Dr. Max Uhle describes some mummies which he discovered, and which he dates to the first centuries of the Christian era, long before the beginning of the Inca civilization.² These mummies were buried in the fully extended dorsal position. The viscera and the brain had been removed, and their sites filled with packing material. The removal of the internal organs was effected through an incision on the right side of the body, which was then sewn up. Within the body wooden sticks had been introduced. In one case he describes, sticks had been passed from the left side of the head to the thigh, from the shoulder to the knee, through the jaws into the interior of the head, and along the spine. Another stick was passed through the palm of the hand along the length of the arm, which was packed with wool. These mummies were painted red and generally provided with a mask of *barro*, on which the features were indicated. The limbs were usually separately wrapped and the arms extended at the sides of the body. Many of the mummies were sewn in skins, and some had artificial wigs. The analogies between these procedures and those used in Egypt during the Twenty-first Dynasty and in Torres Straits are too obvious and striking to need comment. Dr. Uhle adds that the interior of the body-cavity shows evidence of artificial desiccation by fire-heat.

Although the sitting posture is general, considerable variation is to be found in the disposal of the arms and hands. In the mummies described above the respective positions are noted, and Pettigrew describes a mummy which was "in a sitting posture, the knees bent up close to the sides, the hands crossed over the breast."³ The same author figures another Peruvian mummy which has the palms of the hands placed upon the cheeks,⁴ whilst in the case of the mummies found by Dr. Grant McCurdy, "the wrists were brought together on the upper part of the chest, the hands extending to the chin"⁵ (Pl. X, Fig. 2, and Pl. XI, Fig. 1). In the British Museum specimen the hands meet in a grasping attitude above the feet (Pl. X, Fig. 1), and in the Cambridge specimen the hands, with their palmar surfaces inwards, are placed on the shoulders⁶ (Pl. XI, Fig. 2). Further variations will be noted in the other specimens

¹ I may, however, note one interesting detail of their technique. The hair was cut off, and subsequently stuck on to the scalp with some gum-like adhesive after the completion of embalming. This method of treating the hair is sometimes found in Egyptian mummies, in the Canary Islands, and in Samoa. For the latter, see G. Turner, *Samoa*, London, 1884, p. 148.

² "La Arqueología de Arica y Tacna," in the *Boletín de la Sociedad Equatiana de Estudios Históricos Americanos*, vol. in, 1919, pp. 1-48, and pls. i-xxvii.

³ Pettigrew, *op. cit.*, p. 238.

⁴ *Ibid.*, pl. vi, fig. 5. Another mummy in this position is figured by Rivero and Tschudi, *op. cit.*, pl. ii.

⁵ G. Grant McCurdy, *Amer. Journ. Phys. Anthropol.*, vol. vi, No. 3, 1923, pp. 219 and 220.

⁶ Another in this attitude in Rivero and Tschudi, *op. cit.*, pl. iii. Cf. *ibid.*, pl. iv.

represented in the plates, and in Pl. XII, Fig. 2, where the forearms are placed parallel across the abdomen.

With regard to the treatment of the hair, considerable variation is again to be observed. In some cases the head was shaved, in others the hair was left flowing, and in others again it was carefully braided and arranged (Pl. XIII, Figs. 2, 3, and the mummy described by Wilson, *vide supra*). Hutchinson states that of the mummies discovered by him, "some of the females taken out had their hair plaited as perfectly as if it had been done only the night before."¹

We have insufficient data upon which to base any definite observations concerning the wrapping of the body. For the mummies from the necropolis of Ancon, however, we have very full details, and for these the reader is referred to the splendid series of coloured plates and their descriptive letterpress in the monograph of Reiss and Stübel. Most of the mummies in museums, as already noted, had been stripped of their coverings before arrival, but all that I have personally examined are marked with the impressions of cloth. We have already noted the details described by Wilson, the wrappings of the Edinburgh mummy, and the cord-covered specimens from Tiahuanaco (Pl. XI, Fig. 3). Dr. McCurdy's mummies (from the Cuzco district) were enveloped in coverings which "consist for the most part of coils of grass-rope: these coils are sewn together by a grass-rope of a much smaller size At the base of the coil is the seat-ring."² These seat-rings are composed of twisted withies bound with cord. The two specimens from Tiahuanaco have seat-rings sewn on to the body-covering. The bodies of persons of wealth or rank were more elaborately dressed.³ One specimen is clothed in a mantle of feathered mosaic, with a neck-band, shawls, hair-net, and head-wrap: the hair is braided with tassels of parrot-feathers.⁴ The head of a Peruvian mummy in the Wellcome Museum is dressed with similar elaboration (Pl. XIII, Fig. 2). Pettigrew, speaking of mummies found near Arica, states that in each case the body was "enveloped in a woollen cloth, which in its manufacture resembles an extremely coarse crape, over which the poncho was put, wrapped round the whole and tightly secured, and covered by a neat network of well-made cordage, with large meshes. The head was enveloped in the same crape-like cloth, with a closely woven cap, or surmounted by a wreath of feathers."⁵ Reiss and Stübel give coloured pictures of a series of mummies similarly decked and netted. The mummy examined by Professor Elliot Smith was dressed in woollen garments, and was wearing a woollen peaked cap the apex of which was furnished with a bunch of feathers.⁶ Dr. Charles W. Mead, of the American Museum of Natural

¹ T. J. Hutchinson, *Journ. Anthropol. Inst.*, vol. iv, 1875, p. 3.

² McCurdy, *op. cit.*, p. 220, and pl. vi. Reiss and Stübel figure a mummy from Ancon similarly wound in grass-rope (pl. I B). Cf. Rivero and Tschudi, *op. cit.*, pp. 202 and 203.

³ See especially the coloured pictures in Reiss and Stübel, *op. cit.*, pls. 11 *et seq.*

⁴ *Evening Brit.*, 11th ed., vol. vi, America, p. 5, fig. 6.

⁵ Pettigrew, *op. cit.*, p. 238.

⁶ Elliot Smith, *The Migrations of Early Man*, p. 112.

History, New York, in his interesting handbook on Inca civilization,¹ figures a mummy which is elaborately dressed, corded, and furnished with a false head, on which the features are represented by means of attachments sewn on to the cloth. He has very kindly sent me a print of this photograph with permission to reproduce it (Pl. XII, Fig. 1). The mummy in question was found at Santa Rosa, near Ancon. The method of furnishing the mummy with a false head (the real head was enclosed beneath the wrappings) seems to be peculiar to the Ancon district, as I cannot find any account of the custom elsewhere. Most of the mummies figured by Reiss and Stübel have artificial heads, and, as already noted, the face is red. The artificial eyes affixed to these heads are elliptical plates of white stone or shell upon which the iris is represented in black. These eyes are exactly like those used by the Egyptians in the Twenty-first Dynasty and by the Torres Straits islanders.² The purpose of this false head and face is evidently derived from the attempt to perpetuate the personal identity of the dead man by fashioning what was intended to be his portrait on the outermost wrappings of the mummy. The very same motive impelled the Egyptian embalmers of the Pyramid Age to paint the features of the corpse upon the head-bandages, and to make artificial "substitute-heads" to take the place of the real head which was concealed beneath the wrappings. This custom, as we have already noted, developed into the use of portrait-masks, anthropoid coffins, and portrait-panels. The faces of the two mummies in Pl. XI, Fig. 3, are exposed for precisely the same reason, *i.e.* to establish their personal identity. The careful arrangement of the hair, the painting of the face, the clothing of the body in its garments and insignia,³ and other details of the technique, show clearly that the Peruvian embalmers had the same objects in view as the Egyptians had—the perpetuation of the identity of the person and rank of the dead. The aim of mummification both in Egypt and elsewhere was twofold: first to preserve the body from decay, and secondly to secure the personal survival of the individual.

The above paper is intended to be no more than provisional. In attempting to interpret such scanty data as we have, I would call attention to the need of a fuller study, not only of the existing material, but to a closer attention to detail in recording field-work. In the numerous reports which I have consulted in the preparation of this paper,⁴ I have been disappointed again and again by finding that the descriptions

¹ *Old Civilisations of Inca Land*, New York, 1924.

² Cases have been recorded in which the mummy itself had been provided with artificial eyes. (See *Zeitschr. für Ethnolog.*, xxiv, p. 504; xxv, p. 265.)

³ It is most interesting to note that the wealthier burials in Peru were provided with gold breast-plates. (See *Journ. Anthropol. Inst.*, vol. xviii, 1889, p. 274.) The gold pectoral was an essential part of the equipment of the mummy of a royal or wealthy personage in ancient Egypt. In illustration of this fact, it is only necessary to refer to the magnificent gold pectorals found upon the mummy of Tutankhamen. (See Howard Carter, *Tomb of Tutankhamen*, vol. ii, London, 1927, pls. 25, 27, 30, 79 and 80.)

⁴ Many more than are indicated in the footnotes. I have quoted only those that throw light upon the technique of mummification.



FIG. 1.

FIG. 1.—MUMMY OF AN ADULT MALE FROM THIRITY BAY, QUEENSLAND. (After Hamlyn Harris, *New Queensland Mus.*, vol. 1, pl. 1.)



FIG. 2.

FIG. 2.—MUMMY OF AN ADULT MALE FROM ADELAIDE DISTRICT, SOUTH AUSTRALIA. (From an old photograph in the Royal College of Surgeons, London. Reproduced by kind permission of Sir Arthur Keith.)

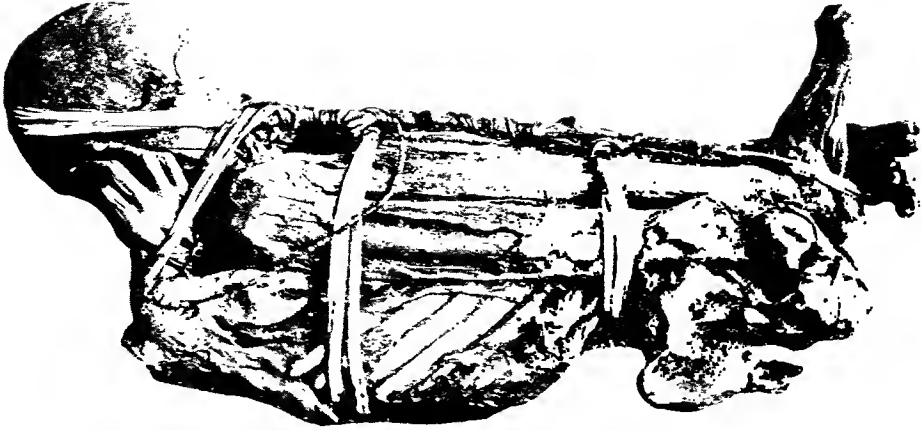


FIG. 3.

FIG. 3.—MUMMY FROM NORTH AUSTRALIA.



FIG. 1.



FIG. 2.



FIG. 3.

FIG. 1.—MUMMY OF AN INFANT FROM GILA CLIFF-DWELLING, UPPER GILA RIVER. (After Hough, *Smithsonian Bull.*, No. 87.)

FIG. 2.—MUMMY OF A MEDICINE-MAN FROM AN ANCIENT CLIFF-DWELLING, SAN JUAN COUNTY, UTAH. Salt Lake City Museum. (By kind permission of Mr. Levi Edgar Young.)

FIG. 3.—MUMMY OF A CHIEF, SAN JUAN COUNTY, UTAH. Salt Lake City Museum. (By kind permission of Mr. Levi Edgar Young.)



FIG. 3.

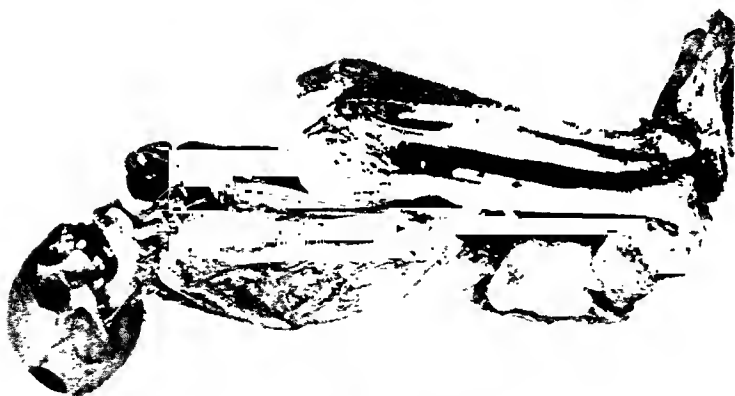


FIG. 2.

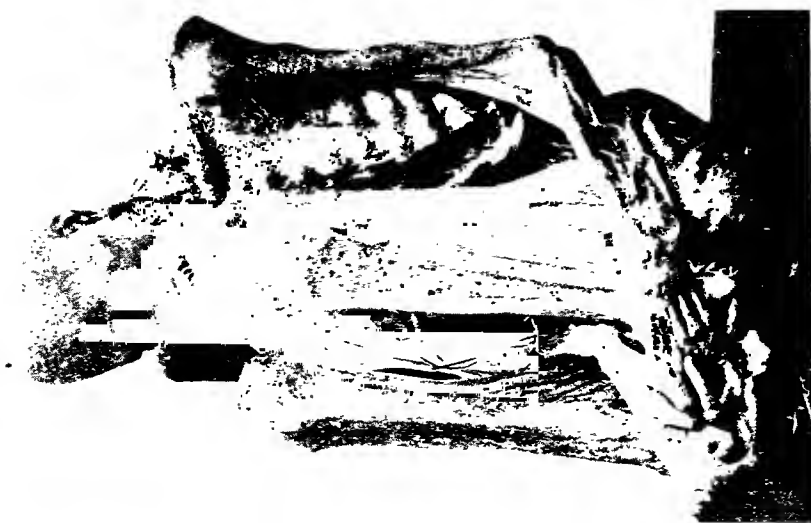


FIG. 1.

FIG. 1. MUMMY OF AN ADULT MALE FROM THE PERUVIAN ANDES. British Museum (Natural History).
 FIG. 2. MUMMY OF AN ADULT MALE FROM CUZCO INQUIRICO, PERU. (After McCurdy, *Amer. Journ. Phys. Anthropol.*, vol. vi, pl. 3.)
 FIG. 3. MUMMY OF AN ADULT MALE FROM PERU. Milan Museum.



FIG. 1



FIG. 2.

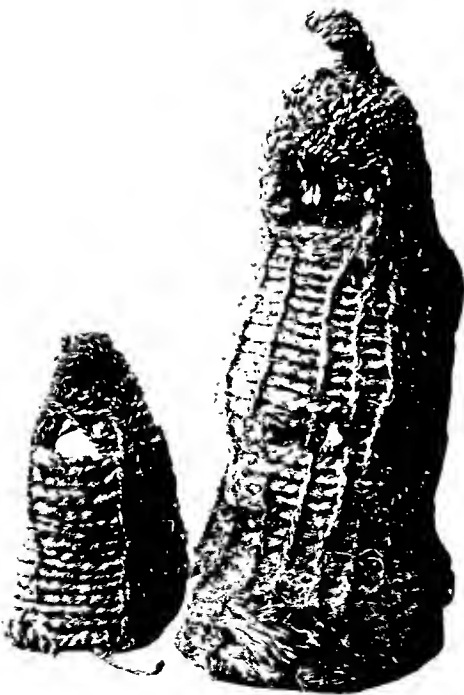


FIG. 3



FIG. 4.

FIG. 1.—MUMMY OF A CHILD, CEZCO DISTRICT, PERU. (After McCurdy, *op. cit.*)

FIG. 2.—PERUVIAN MUMMY. Cambridge University Anatomical Museum. (From a photograph kindly supplied by Dr. W. L. H. Duckworth.)

FIG. 3.—MUMMIES OF A CHILD AND AN ADULT FROM TIAHUANACO, BOLIVIA.

FIG. 4.—MUMMY FROM MARACAMBO, PERU. Wellcome Museum, London.

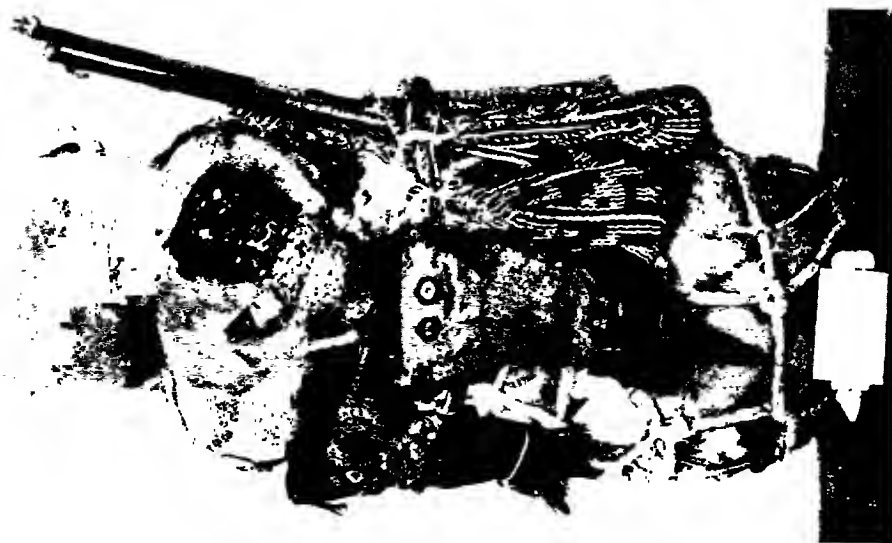


FIG. 1.

FIG. 1.—MUMMY FROM SANTA ROSA, NEAR ANCON. American Museum of Natural History, New York. (From a photograph kindly supplied by Dr. C. W. Mead.)



FIG. 2.

FIG. 2.—RIGHT-SIDE VIEW OF A FEMALE PERUVIAN MUMMY, POSSIBLY FROM THE VALLEY OF HUÉLYA. Manchester Museum.



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.

FIG. 1.—MUMMY FROM MARACAIBO. "A."

FIG. 2.—HEAD OF A PERUVIAN MUMMY.

FIGS. 3 AND 4.—MUMMIES FROM MARACAIBO. "B."

All in the Wellcome Historical Medical Museum, London. (*Copyright.*)

MUMMIFICATION IN AUSTRALIA AND IN AMERICA.

of mummies are usually so summary and superficial as to afford no information whatever. Meticulous observation and recording of the minutest detail is not only the life-blood of scientific research, but is the means whereby an interesting and distinctive custom such as mummification and its significance is raised from the domain of the merely curious and elevated to its proper sphere of anthropological and ethnographical data of the highest importance.¹

In conclusion, I should like to say that I shall be most grateful to the conservators of any museums which contain Australian or American mummies (or indeed, mummies



FIG. 1—TWO BOLIVIAN MUMMIES (FROM A PHOTOGRAPH IN THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS, REPRODUCED BY PERMISSION OF SIR ARTHUR KEITH).

from any locality) if they would send me particulars, and, if possible, photographs of their specimens, in order that the present study—which, owing to my limited opportunities for research, has been founded mainly on the observation of a limited series of materials—may be amplified and expanded, so as to increase our store of knowledge whilst it is still possible to obtain such information.

POSTSCRIPT.

Since the above paper was set in type further material has become available to me that confirms and considerably extends the conclusions already arrived at. To Mr. George Heye I am indebted for a splendid series of 23 photographs of

¹ Apart from the technique of mummification, Peruvian mummies have afforded interesting evidence of other customs, including head-deformation, ear-piercing, or amputation, and tattooing. For the last-named, see the coloured examples in Ross and Stadel, *op. cit. supra*, pl. 29.

specimens, from various localities in North, Central and South America, in the Museum of the American Indian, New York. I hope at a later date to make full use of this valuable material, but in the meantime I can add to the list of localities mentioned above (p. 121), Mexico, Montana and Nevada.

I have also examined two mummies from Colombia, photographs and descriptions of which have been published in *Mem.* vol. xxviii, 1928, No. 53.

DEGREE-TAKING RITES IN SOUTH WEST BAY, MALEKULA.

[WITH PLATES XIV-XIX.]

By J. W. LAYARD.

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I.

FOREWORD.

ETHNOLOGY has suffered a severe loss in the tragic death of Mr. Bernard Deacon, on the eve of his departure from the New Hebrides after a long spell of field-work. A large part of Mr. Deacon's time was spent in South West Bay, Malekula, and it is in view of the forthcoming publication of his notes that Dr. Haddon has asked me to contribute the results of a brief visit which I paid to the district in May, 1915.

My own base for intensive work was at Atchim, a small island off the north-east coast, and it was in the course of a general survey of Malekula that I was able to put in a week's work at South West Bay. Owing to the chances of coastal communication I was not able to remain longer at that time, but I was so struck with the importance of the material that I determined to return at the earliest possible moment. This I was unfortunately never able to do, and when Mr. Deacon proposed going to Malekula I handed these notes over to him as a basis for investigation.

The work was done through the medium of Tom Sandu, native Mission teacher, who acted as interpreter. He was a man of some intelligence, and sufficiently conscious of his own ignorance of native affairs to rely entirely on the accounts of the two old men who acted as informants. These, however, lived a good two

hours' journey from the trader who kindly gave me hospitality. Owing to this, and to the fact that my chief informant was old and easily tired, none of my seven days represented more than five hours' actual work.

The results of the extremely short time at my disposal, and of my sudden departure, are very evident in my notes, and I should hesitate to publish them but for Dr. Haddon's earnest request.

I should like, in case either of them should see this account, to offer my warmest thanks to Mr. Fred Paton for taking me to South West Bay, and to Mr. and Mrs. McAfee for their hospitality to me while I was there.

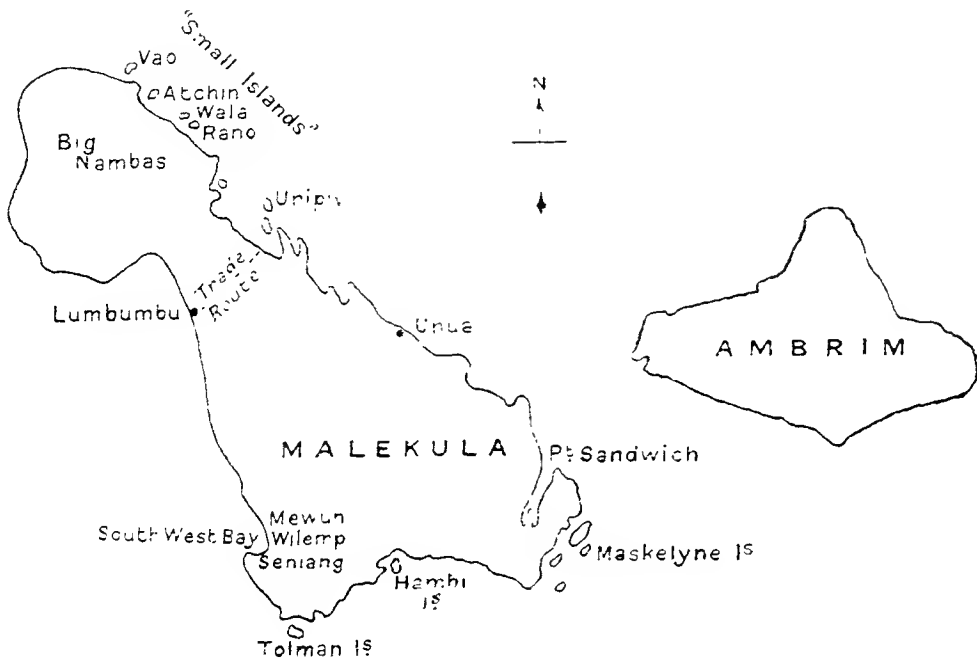


FIG. 1.—SKETCH-MAP OF MALEKULA.

INTRODUCTION.

Malekula is an island roughly 80 miles long, and lies in the centre of the Northern New Hebrides.

Our only exact knowledge is of the coastal peoples.¹ These show great diversity of culture, but possess certain out-standing features in common. Among them are patrilineal descent: government by means of public opinion centred in the old men of the village: the wearing by the men of a plaited penis-wrapper, and by women of a mat wrapped tightly round the thighs: incision: slit-gongs:

¹ Little is known of the interior, except that there is a reputed race of short stature in the south, and that the inhabitants of the northern plateau are said to possess chieftainship and to practise circumcision.

club-house organization; and the public degree-taking institution known by the name of Menggi, Mangki, or Maki.¹

The special features distinguishing the culture of South West Bay from that of Northern Malekula are:—

- (i) Head and nose deformation;
- (ii) Modelling the skulls of the dead of high degree with clay, in order to resemble the features of the deceased as closely as possible, mounting them on artificial bodies, and preserving these effigies in the club-house;
- (iii) The use, for purposes of magic, of articles of pottery, of the manufacture of which the natives have long been ignorant, and which they attribute to
- (iv) A race of white-skinned people called Ambat, whom they regard as their ancestors.

Information regarding these aspects of culture has been kept till the end of this paper, the main theme of which is an account of the degree-taking ceremonies which in South West Bay are known by the name of Menggi.

General Survey of the Degree-taking Institution in Malekula.—There is abundant evidence all round the coast of the immigrant nature of this element of culture, and it is still in process of diffusion. Evidence of this will be seen in the following account: but still more striking is the detailed history of its introduction into the Small Islands on the north-east coast, which I hope shortly to publish.

The institution consists in a series of grades through which a man rises in rank, and membership comprises the entire male population. The novice must in every case be introduced into his new rank by one who has already taken it, to whom he makes appropriate payment. The central point of each ceremony is the erection of a wooden image, monolith, dolmen, or stone platform, or certain of these combined, at which a pig, the property of the introducer, is sacrificed by the novice, whereupon the latter adopts a new name and a new fire, and is given the insignia of his new rank.

This description will immediately suggest comparison with the ranks of the Suque in the Banks Islands. The outstanding difference between the two institutions is that where the Suque is performed in the strict secrecy of the club-house, the Menggi, although intimately connected with the club-house organization, is essentially public. In fact, the stones and images connected with the Menggi, together with the slit-gongs, are the most striking objects that meet the eye in entering any Malekulan village.

Although the fundamental character of the institution is essentially the same all round the coast, it admits of infinite variation, not only in detail but in the general lay-out of the ceremonies.

¹ *Menggi* in South West Bay; *Makiki* on the east coast of Malekula or the Ambat; *Maki* in the Small Islands on the north-east coast.

In the whole region under discussion, that is to say, the coastal districts of Malekula and Ambrim,¹ the central degree is that which confers the title of "Mal" (in South West Bay, "Maliaas"). This word is connected with the words *bul* or *pal*, meaning "to kill," and used exclusively, so far as my knowledge goes, for the ceremonial killing of a pig, quite another word being used for killing in the lay sense. This word might thus with correctness be translated "sacrifice," and "Mal" means literally "priest."²

The first point of difference in the rites of the various localities lies in the great variety in the number of the degrees leading up to Mal. At Unua, in the centre of the east coast of Malekula, there are about five, and the degree of Mal is reached only by few, and at great personal expense. Northwards and southwards from this point there is a remarkable divergence in the development of the institution in diametrically opposite directions, in the north towards reduction, and in the south towards a very great increase in the number of the degrees.

On the one hand, a Mal from Unua is apt to experience a severe shock when, on visiting the Small Islands further up the coast, he finds that every piccaninny who is old enough to have taken any ceremony at all is the proud possessor of that self-same title. Here the number of degrees has been reduced to a single one, with the supernumerary degree, Meldek,³ added above it.

On the other hand, in the district of Sulol, in Ambrim,⁴ the number has increased to seventeen, and in South West Bay it is even greater. Both these divergent developments would seem to be due to the same cause, namely, the natives' passion for the multiplication of ceremonies. In one case this shows itself in the number of degrees. In the other it has taken the form of so elaborating the central degree of Mal that others which were formerly in use have got squeezed out.

The whole history of the change in Atchin will be published in my book on that island, but it is necessary here to give a few indications of how it has come about.

The point of departure lies in the tendency for several men to take the same degree together, and this again has roots both in the economic factor and in the native's love of display.

It must not be forgotten that even the simplest ceremonies appertaining to the lower degrees entail a considerable expense. A valuable pig is sacrificed, the introducer must be paid his fee, those who assist in the manufacture of the various "properties" must be rewarded, and hospitable and presents accorded to the assembled guests.

¹ At any rate, the part of Ambrim from Malekula.

² Mr. Ray tells me that *pal* is Malay for "to strike" or "to cut," and *bul* "to sacrifice." Formed from the roots *mal* and *bul* = "to sacrifice."

³ From an unpublished MS. of Dr. Rivers, who doubts to state the exact location of Sulol.

With the rise in grade these expenses become each time heavier, so that it is only a rich man, or one who can count on the services of a large circle of relatives (which comes to the same thing) who can take it upon himself to set the thing on foot. It is therefore customary throughout the region for one man to take the lead, supplying the greater part of the pigs and produce, and for others to join him with such contributions as they can afford. The pool thus obtained adds immeasurably to the display and to the general festivity. Each novice must have a separate introducer, and perform the essential parts of the rite, killing his pig, making his payments, changing his name, and taking his new fire, but the greater "kudos" will redound to the prime mover, and through the system of exchange-presents universal in Malekula he will still be the richer, and again be in a position, after the necessary period of recuperation, to lead the way.

In other parts of the region this tendency becomes less marked as the degree of Mal is approached, the high honours being guarded as a jealous prerogative. But in Atchin the position has been completely reversed. There is literally only one degree now in Atchin. Every male member of the village takes it at the same time: it is led up to by a series of ceremonies lasting over a minimum period of thirty years, during which thousands of valuable pigs are killed and endless provender consumed: all assume the title of Mal, and those who assist for the second time take the supernumerary degree of Meldek.

The state of affairs in Atchin is only an extreme example of what is happening in all the small islands off the north-west coast of Malekula. These islands, though not forming a political entity, possess a comparatively homogeneous culture, and may be treated as one cultural unit. I shall have occasion to refer to them during the discussion at the end of this account, and, adopting local practice, I shall refer to them in future as the Small Islands, without further explanation.

It is clear that this extraordinary elaboration of ceremony on the Small Islands has been accompanied by a remarkable advance in the art of pig culture. Throughout the region under discussion the value of a pig from the sacrificial point of view depends entirely on the development of its tusks. To facilitate their growth, the upper incisors are extracted, the pig is fed on the most nourishing of food, magic is performed over it, and the animal is confined to its sty for life, for fear that the objects of all this care should be broken.

In South West Bay and in Ambrim, the finest pigs known appear to be those of which the tusks curl round so as to pierce the skin and possibly the jaw. In the Small Islands they are reared so as not only to pierce the jaw but to complete a circle, and in noted cases to make two, or even three, complete circuits. From the prominence of these pigs in the ceremonial of the Small Islands it would seem that they are not unconnected with its remarkable development.

Returning now to South West Bay, we find that the opposite course of development has taken place. Here the number of degrees exceeds even that on Ambrim,

It will be seen that in the district from which I obtained my account there are fourteen degrees up to and including Mbalias, while there are a possible thirteen further degrees known to my informants. It is the analysis of these degrees which forms the chief subject of this paper.

Note.—In using the phrase “elaboration of ceremony” in regard to the Small Islands, I wish to make it clear that I do not in any way suggest the invention of new forms. I refer rather to the adaptation of old forms taken over by a people ignorant of their original meaning, and using them largely to gratify an overwhelming sense of display.

The case of these islands may be peculiar, but a brief reference to what has happened at the other end of Malekula may be of use as a background to the subject of this paper.

It is a fact that there is not a single element of ceremonial culture to which the native of Atchin will lay claim as being indigenous. The whole of the elaborate Maki ceremonial and all the initiation rites have been brought, either direct or at second-hand, through intermediate villages or islands, from a spot on the mainland, opposite the island of Wala. Here, close to a well-known anchorage, were formerly two villages, now extinct, from which, for the last few generations, culture has been radiating both up and down the coast, and, with succeeding generations, the display has become steadily greater. It is one of the tragedies of field-work in Malekula that the centre of this expanding culture is now extinct, though the culture is still in course of diffusion through the slow channels of ceremonial purchase.

With this necessary background, we can now turn to the immediate subject of our paper.

South West Bay. Districts. Club-house and Dancing-ground.—Three districts abut on the coast at South West Bay, and each speaks a distinct dialect. That to the north is called Mewun, that to the south Seniang, while the central district is referred to by its southern and northern neighbours respectively as Ewut and Wilemp. My information deals exclusively with the southern district of Seniang.

Here each village possesses a club-house (*na-amel*), in which are kept the skulls of the dead of high rank, modelled as nearly as possible to represent the features of the dead man, and mounted on an artificial body bearing the insignia of his rank and other emblems. The secrets of the club-house are carefully guarded from women,¹ the door being so low as to permit of entrance only in a crouching position. (See Pl. XIV, Fig. 1; Pl. XV, Fig. 2; Pl. XVII, Fig. 3.)

¹ On the other hand, I was told, both here and in Lumoubu, that “boys and widows” sleep in the club-houses; but my time was so short that I was unable to obtain any elucidation of this statement.

In front of the club-house is a circular dancing-ground (*liw-an-out*), with the orchestra of slit-gongs in the middle.¹

Orthography.—As the language of South West Bay differs considerably, both in vocabulary and grammar, from the languages of the north-east coast with which I was familiar, the spelling of native words in this article cannot be taken as final. An ever-present difficulty in a new Melanesian language is the separation of particles from the words they qualify. In regard to the fact that so many words begin with *u*, this is, of course, the inseparable article. It may be followed by any of the five vowels, modified, according to definite rules, by the initial letters of the qualified word. In view of the fact that many of the qualified words themselves begin with a vowel, it is impossible, without an intimate knowledge of the language in question, to know whether the vowel following the *u* belongs to the noun or the article. It has therefore been my rule to separate, by a hyphen, the article from the noun it qualifies only in cases of tolerable certainty. In the majority of cases I have followed the usual practice of writing article and noun in one.

A particular orthographical difficulty presents itself in South West Bay in the presence of a complicated syllable composed of the sounds *mbu*. A median *b* is apparently always preceded by *m*, and the *bu* is really a rolled *b* with simultaneous *u*-sound. The place-name *Lumbumba* is a case in point, and might equally well be spelt *Lumbrbr*. I find such words spelt variously in my notes, and for simplicity's sake have reduced this syllable in the text to a simple *mbu*.

II.

THE MENGAT.²

Preliminary Explanations.

General.—A brief account of the general outline of this institution has already been given in the Introduction. Though this outline will hold good wherever the institution is found, there is considerable variation, not only in the details of the ceremony, but even in the central object at which the sacrifice takes place.

¹ These are of the usual Malekulan type, with a human face carved and painted above the top of the slit, and consist of a mother-gong (*u-huwa munda*) standing about 10 feet high, a slightly smaller pair called *u-simbu u*, and a yet smaller pair called *u-simbu simbu*, with a number of plain portable gongs called *u-l-ekip*. This central position of the gongs is in marked contrast to their position at the side of the very much larger dancing-grounds in the Small Islands (see *ibid.* on p. 164). The varied and complicated rhythms beaten on these gong-orchestras will be fully described in my forthcoming book on the Small Islands.

² This word is, in practice, never used without the article "*u*." It is sometimes difficult to separate these articles from the nouns which they qualify, but as this is a clear case, I shall omit it throughout this account. There are other ceremonies which are also called Mengat, but it is only of those by which rise in rank is obtained that I have information.

With regard to the Small Islands, at Atchin the central object is a stone platform with a wooden image in front of it, both covered with a temporary roof, while ten further "houses" each contain a monolith with a wooden image in front and a small dolmen behind, while further monoliths or dolmens are added to bring the total number to a hundred. In Vao the monolith is less conspicuous, and the chief objects are a stone platform and a dolmen, each with its wooden image.

In Ambrim, also, stone platform and wooden images are prominent.

In the Seniang district of South West Bay, which is the subject of this paper, both stone platform (with the possible exception of the degree of Tar-lenunggor) and dolmen are absent, and we have the special feature of the stone circle and the planting of certain trees as a central feature of the rite.

In the lower degrees wooden images are erected. As the degrees advance, this is combined with the planting of trees, while in the higher degrees, which take the title of Mbalias (corresponding to Mal in the Small Islands) the place of the wooden image is taken by a monolith, which is at first plain, then grooved, and in the highest degrees of all is carved to represent several human faces or the whole human figure. Besides the central trees, a large number of smaller shrubs are planted throughout the course of the rites.

In the higher, and what I have called "stone-using" degrees, the central object, whether tree, wooden image, or monolith, is surrounded by a stone circle. In the lower degrees the place of the stone circle is taken by a rope supported on four stakes.

A further unique feature in the Seniang district is a hollow cone, made of a framework of bamboo adorned with fowls' feathers, in which the novices are carried round the gongs as the central rite in one of the degrees¹. The pole from which this object is suspended prior to its use is in itself an image, being in effect carved from top to bottom with a series of representations of the human face and body.

In order to simplify the description of the rather complicated ceremonies centring round these objects, it is necessary first to make certain general explanations. In the case of every degree the ground-plan of the ceremony is the same:—

- (a) An image, carved pole, or monolith is erected, or a tree or shrub is planted, and this central object is enclosed, in the early degrees, with a rope supported on four stakes, or in the higher degrees by a stone circle.
- (b) Payment of live pigs is made by the novice to the introducer, not only for the object erected, its decorations and numerous paraphernalia, but for a number of other objects which he is now entitled to use, and which may be regarded as his insignia of rank.

¹ Mowbray, *ibid.*

- (c) Valuable pigs, supplied by the introducer, are killed by the novice in honour of the object erected.
- (d) All those present who have already taken the degree present the novice with the title belonging to his new rank.
- (e) The novice, in certain cases, enters into the use of a new fire. (*See* p. 189)

Novice and Introducer.—Before going any further, it is necessary to outline the relations between novice and introducer, and to describe in detail the ceremonial transactions implicit in (b) and (c).

Firstly, a word as to the terms "novice" and "introducer." When Rivers first set out to describe the somewhat similar degree-taking ceremonies of the Suque, he made use of the words "candidate" and "initiate." When, however, he made his way southwards and came in contact with the public degree-taking ceremonies of the Northern New Hebrides, he was so impressed with the commercial aspect of the institution, which indeed is extremely marked, that he discarded the terms "candidate" and "initiate" in favour of "buyer" and "seller."

Two reasons have led me to reject both these sets of terms in respect of the institution under question.

In the first place, there is such a marked distinction in Malekula between the public degree-taking ceremonies of the Maki or Menggi and the secret initiation ceremonies connected with incision,¹ that it became necessary to provide distinct sets of terms for the two institutions. I have therefore retained the terms "candidate" and "initiate" for use in connection with the incision-initiation ceremonies, and am under the necessity of finding other terms for use in respect of the public ceremonies here represented by the Menggi.

In my field-notes I used Rivers's alternative terms of "buyer" and "seller," but as the work proceeded I became more and more impressed with their inadequacy. The kind of pride taken in the acquisition of a new degree, and the whole feeling of introduction into a new status, is such that, in spite of a very real commercial aspect, I have been led to adopt the terms "novice" and "introducer" as a more accurate method of description. My interpreter in South West Bay, himself a native Mission teacher, actually referred to the introducer as the "teacher," which is an interesting indication of his attitude, not only to the question under discussion, but to his own calling.

In all the transactions outlined above under (b) and (c), there are four principal actors. First we have the novice and introducer. The latter is responsible for making the image, monolith, stone circle, and all the smaller "properties" connected with the degree, and for instructing the novice in all that appertains to it.

¹ These are of very great number and variety in the Small Islands, and bear in some respects a strong resemblance to the Tamate Liwoa of the Banks Islands.

For all these things he is paid.¹ by the novice in pigs. in the manner about to be described. He himself must provide the pig which is to be killed "for the Menggi." This sacrificial pig may not be eaten by either novice or introducer, but only by others who have taken the degree in question, and who are specially invited. When, therefore, a man has been approached by a novice on the subject of introducing him to a degree, and has given his consent (which he cannot refuse), his first care is to search about among his peers for one who will eat this pig which is to be killed "for the Menggi." This man plays an important part in the ensuing ceremony, and I propose to call him the "Companion." He in turn invites three or four of his peers to come with him and help him eat the pig. These men I propose to call "Mates," and it is one of these who plays the fourth rôle in the drama.

It will be seen in the account that there are many subsidiary ceremonies leading up to the culminating act of each degree. In every case, however, this central act is as follows :—

"*Circling for Pigs*.—Visitors from the surrounding villages who come to look on, or, in the case of the higher degrees, to join in the dance called "*teur*," bring yams and coco-nuts. On ordinary occasions, when there is no *teur*, these are all put in a heap on the arrival of the visitors. After the creation of the images, etc., these are distributed, a bunch of yams being placed on the ground for each visitor, with two coco-nuts joined together by a portion of loose fibre, which is tied over the yams. This distribution is called "*rembumburi*."

Then follows the ceremony of paying the introducer for the various objects connected with the degree. For each object a pig is presented in the following manner: The novice, holding the pig, approaches the introducer, who hands the object to be bought to the Companion, who in turn hands it on to one of his Mates. The gongs are beaten, and the novice dances round them, carrying the pig on his shoulder. The Mate dances round the opposite way, and they converge again in front of the introducer, to whom the novice presents the pig by laying it at his feet. The Mate then seizes the novice and takes off him the corresponding ornament acquired during the preceding degree, replacing it by the new one.

In the case of the purchase of a new *tilewar* (a pig's tusk worn as a bracelet on the wrist or above the elbow), bought during one of the degrees in which the central object is enclosed with a stone circle, there is a special procedure. The front stone of the circle is styled a phallus. The Mate, to whom a small round pebble is given with the new bracelet, drags the novice to this phallic stone, and placing his wrist or elbow on the top of it, cracks with the pebble the bracelet belonging to his last degree, and replaces it with the new one. He then lays the pebble on the top of the phallic stone, where it remains, and is called the "stone's child."

¹ I use the word "pay" without prejudice to the ceremonial nature of the transaction.

Next follows the ceremony called *rarar-ai-o'oi*, for killing the pig "for the Menggi." The novice now again approaches the introducer, holding in one hand a spear (*manas*), or in certain cases, a wooden pig-killer (*mu-ai-motemot*),¹ and in the other the rope to which is attached the pig to be killed. These he gives to the introducer, who retains the pig and hands on the spear to the Companion, saying "I give you this pig, to eat it." The Companion hands the spear on to one of his Mates, and they all dance round the gongs (which are beaten in the rhythm called "*indilindilo-mas*,")² and return to the introducer, who hands the pig rope³ to the Companion. Then the Mate who is holding the spear touches the pig with the point of it, thereby "killing" the pig ceremonially, and Companion and Mates call out to the novice, "We give you our name, Tar-lenunggor" (or whatever the name happens to be). Then they depart, taking the pig with them, to be killed and eaten on arriving home.

This dancing round a central point is an integral and important item of the pig-culture of Malekula. I propose, therefore, for the sake of unity, to adopt the words "circling" and "to circle" as technical terms for this procedure.⁴

Additional ceremonies are introduced as the degrees advance, but in all cases the ground-plan, as outlined above, remains the same.

Dual Rite.—A remarkable feature is that in the case of the higher degrees, from No-ulas upwards (with certain exceptions), the whole rite becomes doubled. An image or tree is erected, the whole of the ceremonies described are gone through, and it would seem as if the rite were complete: then a new image or other object is erected and the entire cycle of ceremonies is repeated. In this second performance the payment and killing of pigs does not take place immediately after the erection of the image. This is erected in the evening of one day and on the following morning visitors from the surrounding villages join in a dance called "*tena*," which is danced (presumably in relays) from sunrise on the morning in question till sunrise the next day. At the end of the dance, special pigs are killed for the consumption

¹ Large pigs are killed with a spear, small pigs with a wooden pig-killer or shouldered hammer, frequently decorated with carvings of the human face (Pl. XIX, Fig. 2). There is a single instance of a pig being killed with a stone.

² Other rhythms are sometimes beaten during *rarar-ai-o'oi*, but I am uncertain as to the meaning of them.

³ In contrast to other parts of Melanesia, the pig is led by means of a rope attached to the hind leg, and not slung on a pole. In the Small Islands, and probably here also, this rope is invested with considerable ceremonial importance, owing to its being tethered to the stone or other object at which the pig is sacrificed.

⁴ In order to remind the reader of the existence of this "circling," and to give some colour to a very technical narrative, I have introduced the phrase in the account of the degrees up to Andal whenever a sacrificial pig is killed. After that, to avoid wearisome repetition, it has been omitted. But it must be clearly understood that whenever ceremonial payment is made for any object connected with the degree, and whenever a sacrificial pig is ceremonially killed, the appropriate "circling" invariably takes place.

of the dancers, and this is followed by the payment of pigs for the various objects bought, and the killing of the sacrificial pig with the same ceremony as has been described above.

The Degrees: Descriptive Names and Titles.—Bearing in mind the common plan described above, we are now in a position to examine the individual degrees.

Each degree can be referred to by one of two names. Of these, one is "descriptive," being frequently the name of some object prominent in the ceremony. I will call this the "descriptive name." The other is the "title" conferred on the performer. In a few cases the two names are identical.

The following are the names of the degrees and their titles as in present use in Seniang. By the side of each I have put a rough translation, evidence for which will be found at the beginning of the account of each degree¹ :—

<i>Descriptive Name.</i>	<i>Title.</i>
Na-amb-tlew (Holy Fire)	Amb-kon (Holy Fire).
Binben (Garter)	Mweliwsal (Young Archer).
Na-ambuloh (Holy Fire)	Barangbie (Holy Image).
Na'avuntal (Dance Again)	Andal (Dance Again).
No-ulas (Paint (tree))	No-ulas (Paint (tree)).
Mbaturu (Two Heads)	Mbaturu (Two Heads).
Tanemweliw (Archery Ground)	Tat-lenunggon (Lenunggor Hawk-Dance).
Neliwis (Garter)	Matelau (?).
Ne-wet (Stone)	Wet-ndum (Stone).
Mbalmbal (Sacrificial Pole)	Mbalmbal (Sacrificial Pole).
Ni-mew (Feather Cone)	Mew-langawul (Great Feather Cone).
Ni-mweil (Cycas)	Ni-mweil (Cycas).
Ne-welwel (Dance)	Muluwun (?).
Na-amal-won (Holy Club-house)	Mbalias (Sacrificer (Priest)).

With these we reach the highest available title of Mbalias, but they are followed by others giving yet further opportunity for rise in rank. I give below a list of those of which I have mention. Most of these higher degrees continue to take the title of Mbalias, while some revert to that of Muluwun, and two take foreign titles :—

<i>Descriptive Name.</i>	<i>Title.</i>
Muluwun Sumburan (Old Man Muluwun)	Muluwun Sumburan.
Na-amel nlarlamp (Club-house ?)	Mbalias.
Nitambap (?)	Muluwun.
Mbot mparamp (Long Pole)	Mbalias.
Nembrutun Ne-wet (Foot Stone (? Stone's Foot))	Mbalias.

¹ I do not vouch in every case for the accuracy of these translations, but they will serve to give the reader an idea of their general tone.

<i>Descriptive Name.</i>	<i>Title.</i>
No-usun Amel (Phallic Stone Club-house)	Mbalias.
Ndundu lamp (?)	Mbalias.
Newet mbal (Sacrificial Stone)	Namal.
Namel nambar (Blind Club-house)	Mbalias.
Namu (?)	Mbalias.
No-usun (Phallic Stone)	Mbalias.
Muluwun langawul (Great Muluwun)	Muluwun.
Neru wenoungg (?)	Neru.

A man receives a name at birth,¹ which he keeps all his life, but he is usually addressed by means of his title.

In referring to the different degrees, the native will use indiscriminately either descriptive name or title, though inclining towards the latter, except in cases, such as Ni-mew, where the descriptive name is the shorter of the two and means the same thing.

As the title is, from the comparative point of view, the more important of the two, I shall use this throughout, except in the case of the post-Mbalias degrees between which, sharing the same titles, it is necessary to distinguish by using the descriptive name.

The first two degrees, Amb-kon and Mweliwsal, must be bought from the mother's brother or the mother's father, and there are indications of this having been formerly the case with Barangbie. The other degrees may be bought from anyone who has taken them.

The order in which the degrees are taken will be fully discussed on p. 191 *et seq.* It is sufficient at present to put the matter as it was at first presented to me, viz. :—

Amb-kon must be taken first.

Then there is a certain choice of order up to Mew-langawul.

Ni-mweil, Muluwun and Mbalias (Na-amel won) must be taken in correct order.

After this the order is again subject to a certain amount of change.

Any man who has attained the title of Muluwun is considered to be of high degree. Mbalias is a distinction gained by comparatively few, while the higher degrees taking these titles become increasingly rare.²

¹ See p. 219.

² My informant, Tivlus, an old man, had not progressed above Na-amel ndarlamp, and the highest degree taken at the village of Bwinembar within living memory is Na-amel Nambar, which was acquired by one named Aiso Mba-ar, whose skull and artificial body are to be seen in the club-house. Tivlus has only once seen Namn, at another village, and has only heard of Muluwun langawul, Newet mbal and Neru, and thinks there may be others of which he has never heard. A great man of the Seniang village of Lora wanted to acquire the degree of Muluwun langawul from a man who had performed it far away in the bush, but he died before he had acquired a sufficient number of pigs.

Here, as elsewhere in Malekula, it is not unusual, in the case of the lower degree, that when a man has announced his intention of taking a degree, others from among his friends may seize the opportunity of taking it at the same time, without the bother of setting the whole thing on foot for themselves. In this way, as many as ten or more may take the same degree together.

Each novice must find an introducer and go through the whole gamut of ceremonies, and should erect his own image. Even this, however, has been relaxed of recent years, and several men have been known to share the same image.

Definition of Central Objects occurring throughout the Degrees.—Before proceeding with the detailed account, it is necessary to define a few of the terms used:—

There are two main varieties of **wooden image** (*temes*). One is made of hard wood, of a kind specified in each degree, this fact being of considerable ceremonial importance. These wooden images may be anything from 2 feet, in the case of the early degrees, to 5 feet 6 inches high, and from 6 inches to 1 foot 9 inches in breadth, bearing in relief on one side the representation of the male human form. Although possessing testicles, they have no penis, but this deficiency is made up in a manner shortly to be mentioned. Sometimes an additional face is carved at the base of the image. The other kind of image is made out of the inverted bole of a tree-fern similarly carved, frequently on both sides, and sometimes reaching a height of as much as 12 feet.

The images are painted with red and black pigments, and in some cases, at any rate, the eyes are painted white.

The **monolith** is a roughly hewn block of oval section with a flat top, from 3 feet to 3 feet 6 inches high. In the case of the higher post-Mbalias degrees, where the stone is carved with the human form or faces, the working is much smoother.

An exception to this description is the diminutive tapering monolith with incised face, connected with the degree of Wet-ndum.

It has been said that every image, tree, or monolith erected as the central feature of a degree is enclosed by a rope supported on four stakes or a stone circle.¹

The **rope**, which is used in the earlier degrees, may be of two kinds. The rope itself is always made of coco-nut sinnet, and the difference lies in the fact that the one called *Nimbru-ow* is interlaced with leaves of the kind called *na-aieu*, while that which goes by the name of *Numbal* is intertwined in the same way with coco-nut leaves (*ni-rundrurundr*).

The **stone circle** (*nonggob*) is made up of small stones usually not more than a foot high, but in the case of a circle surrounding an image or monolith carved with the human form the front stone is invariably larger than the rest, and represents

¹ In the case of several images being erected at the same time for the same degree, they must all be enclosed within the same rope or stone circle.

a phallus (*no-usun*), thus supplying the deficiency in the image referred to above.¹ Every one of these phallic stones has a small round pebble resting on top of it, called the "stone's child" (*neurutun u-veet*). This is the stone which was used for breaking the old pig's-tusk bracelet on the novice's wrist (*see* p. 149), but what other significance it has I was unable to learn.

Payment for Insignia.—It has already been said that in addition to the payments made by the novice for the image and everything appertaining to it, down to the paint with which it is adorned, and even in the higher degrees for the act of brushing it down when it is finished, further payment is also necessary for the novice's personal adornments or insignia of rank.

These become increasingly numerous as he rises in degree. Moreover, when the right to the use of any particular form of personal decoration is conferred on a novice during the course of a degree, this right is by no means conferred for life. On the contrary, as was seen above in the case of the pig's-tusk bracelet, this right must be bought afresh at the taking of every subsequent degree: so that by the time the higher degrees are reached the number of pigs to be paid over to the introducer becomes enormous, and it is this commercial aspect of the institution that so struck Rivers, and indeed everyone with any knowledge of the life of the natives.

Owing to the cumulative nature of these payments, the lists given in the following account are necessarily very imperfect, some objects being mentioned by my informants and others forgotten. After some hesitation I have decided to record these lists exactly as I took them down in the field, with full knowledge of their incompleteness. I made, however, a particular effort to obtain information on any *new* item in each degree, and in the following account such new items will be found printed in darker type.²

If any excuse is needed for burdening the narrative with so much detail, it must be remembered that, if indeed the institution is of immigrant origin, all these objects will be of the highest importance in tracing its affinity with other cultures.

With regard to the various trees and shrubs that are planted and to the importance of certain woods used for the images, it is at least probable that the most prominent of these, like the coco-nut, were introduced, and derived their ceremonial importance from this fact—if, indeed, such importance were not already attached to them by the immigrants.

It is, therefore, a misfortune that, owing to the chance nature of my visit, I had no collecting-jars with me, and so am unable, except in a few instances, to

¹ Stone circles surrounding a tree have no phallic stone. The front stone in this case is called *no-ou u-veet*, or "face-stone."

² I wish to emphasize the fact, however, that, owing to the incompleteness of the account, it cannot be assumed that any particular object has not appeared in a previous degree and simply been omitted by my informant.

give their European names. I have, however, recorded all available information about them, in the hopes that at some later date there may come to hand some clue to their identity.

My information regarding the Menggi is derived chiefly from two accounts: the first from Tivlus, and the second from Masingraniew, both of the village of Bwinembar, and both with Tom as interpreter. The difficulty about obtaining an account of this kind of recurring ceremony is that the informant always has his mind fixed on the *differences* between the ceremonies, taking their underlying *sameness* for granted, so that their more constant features have to be dug out with great pains from hints occurring in the narrative. The generalities described in the foregoing introduction only came out during the second narrative.

This narrative, unfortunately, ceased, owing to my unexpected departure, at the degree of Mew-langawul, so that for the degrees above this I have only the very scrappy first account to go on. For the same reason, I had no opportunity to investigate the numerous doubtful points that occur.

I give the following description with full knowledge of its inadequacy.

III.

THE MENGGI (*contd.*).

The Degrees.

The account of each degree is headed by its title, with the descriptive name in brackets.

AMBKON (NA-AMB-TLEW).—*Amb* is the general Malekulan word for "fire"; *lew* is the local word for "taboo," or "holy," in the words of my informant, who is a school-teacher; *kon* is a word used all over Malekula with the same meaning of "holy," superimposed on a variety of local words meaning the same thing. Thus both names mean "holy fire," the name of the degree being in the local dialect, while the title it confers would appear to be of immigrant origin.

Until a child becomes Ambkon he eats with his mother. On becoming Ambkon he eats at a separate fire.

A wooden image is made by the child's mother's brother or mother's father out of *na-ari-mbal* wood, and carved with one face, painted red, white, and black. This is planted¹ at the foot of one of the father's coco-nut trees, in the village or garden, and surrounded by the rope called *nimbrou-ou*. Then the father says: "When the coco-nuts on this tree are dry, we will make a feast for this little boy." When they are dry, the father calls together all those who are Ambkon, Mweliwsal, Barangbie, Andal, No-ulas, and Tar-lemunggor (those of other ranks are too *lew*

¹ By the mother's brother or mother's father, or even the child's father.

(holy)). A feast is made, and pigs are paid the mother's brother and mother's father for—

The image.

Ikikina, the face of the image.¹

The rope surrounding the image.

Na-amp, *i.e.* the right to make the fire.

This appears to be the only case in which the ceremonial "circling" for the sacrificial pig, described on p. 149, is not performed. The pig killed in honour of the image is despatched by the novice with a wooden pig-killer.

The image remains at the foot of the coco-nut tree until it rots, when the taboo imposed on the tree is lifted.

MWELIWSAL (BINBEN.)—*Binben* is the name for all shell-armlets and plaited armlets and garters with Menggi designs. *Liu* = arrow; *sal* is the word used when children go (lit. "float") about the bush shooting at anything that they can see; *mwe* is probably a verbal particle.

A tree-fern image, with one face (Pl. XIV, Fig. 2) is erected by the mother's brother and the mother's father with the help of the child. Round its base are placed bunches of coco-nut frond, split into many strips, together with leaves of the *utor* tree, all bound together with cooking leaves (*norouu*). Men of this and all higher grades may be present, and the yams and other food for the feast are placed also round the feet of the image. Pigs are paid for—

The image.

The face of the image.

The **Garter** (*binben*).—This plaited band may be worn by any child on the arm. Now the right is bought of wearing it below the knee. It is of string, with a zig-zag pattern representing the chin of the flying fox (*n'ien minggere*).

The **Spear** (*namas*) with which the pig is to be killed.

Of the four pigs due in payment of these objects, two are given to the mother's brother, and two to the mother's father. If the own mother's brother is dead, his two are given to his classificatory brothers, or, failing these, to his father (the child's mother's father), or to his children. The pigs are small ones, and their size depends on the wealth of the child's father.

Next the mother's brother gives to the child the pig which he is to kill "for the Menggi."² This is "circled" for by all those who have already taken the degree.

¹ Possibly the *carving* of the face. This payment occurs throughout the degrees, with the same possible meaning.

² The pig given by the mother's brother to the child to kill is roughly equivalent in value to the four which he has received in payment.

and who will subsequently eat the pig. These will all come into the classification of "Mates," as described on p. 149. The pig is killed by the child with a spear if it is a big one, with a wooden pig-killer if it is small. (This again appears to differ from the usual procedure described in the Introduction, in which the pig is killed by the Mate; as also the fact that in this degree the child dances with the spear and shares afterwards in the eating of the pig.)

BARANGBIE (NA-AMBULOH).—*Na-ambuloh* is the same as *Na-amb-tlew*, but in the language of Tolmau Island. I could get no explanation of *Barangbie*, except that it also is a Tolman Island word, and that *bie* also means "holy." *Pwerang* is the name of a degree in Ambrim, and a word in general use there for "image." A similar word, *pwereng*, in Atchiu means "a cave." It would probably be correct to paraphrase *Barangbie* as "holy image."

A bundle of wild canes (*nanwi*) is planted. Pigs are paid for—

The wild canes.

A fillet made out of a leaf called *na-ai-lislis*. This is ordinarily used for tying on the head-covering called *nakambat* (see p. 180). In this case the fillet is worn round the head without head-covering.

A sacrificial pig is "circled" for and killed with a spear in honour of the wild canes.

Ten days later (this really means any day, depending on the readiness of the pigs), an image of *nator*¹ wood is erected. It apparently has two faces on one body. The eyes are painted white, the middle of the body black, and there is also a good deal of red.

The image is made by the brothers, fathers, etc., of the novice. The mother's brother and mother's father may also assist in the work, if they like, but are not more important than the others. It is planted in a spot called *i-lew* (holy place) close to the club-house, and is surrounded by the rope called *nimbru-ow*. Bamboos called *nambu or-temes* and shrubs called *na-ai rev*, and *na-ari-nbrues* (*cordyline terminalis*)² are planted on either side and behind the image. Pigs are paid for—

The image.

The face of the image.

The objects planted.

The sacrificial pig is "circled" for while those who are taking the degree are blackened from head to foot, and all carry ceremonial pig-killers. No man kills his own pig, but each kills that of one of the others. The pigs are then cut up and distributed among the guests, those who have killed not eating.³

¹ An early note says that this is of *mbetop* wood.

² For this and other plant-names I am indebted to the kindness of Mr. V. S. Sommerhayes, Assistant-Keeper of the Herbarium at Kew.

³ I have a note to the effect that the pig-killer is hung by each candidate on the rope surrounding the image, though at what period in the ceremony I do not know. The animal is killed ceremonially with the pig-killer, but afterward killed actually with the spear.

It is apparently incumbent upon a man, if he possess a large pig, such as a crescent-tusker (*see* p. 190) to kill it. If he has not one of this grade, he must kill the largest he has.

Note.—Up to this point a dance called “*a’ab*” has been performed in connection with the ceremonies. With the next degree we find the performance of a new dance called “*tear*,” or “*tear a’abren*,” which remains prominent throughout the ensuing degrees.¹

ANDAL (NA-*AVUNTAL*) (*na-ar* = a dance, *atal* = again, i.e. *na-avuntal* = they dance again: (*a*)*andal* is a bush dialect for “go back”).—An image of *niminda*² wood (Pl. XIV, Fig. 2) carved to represent the figure of a man, and painted red and black with white eyes, is erected inside the club-house.

The image or images are surrounded with the rope called “numbul,” with a young coco-nut (*nabuan nu ndiwele*) hanging “like a bell” from the front. The image is made by the brothers and fathers of the candidate. Pigs are paid for—

The image.

The face of the image.

The rope.

The coco-nut hanging on the rope.

The spear.

Payment may be made to such varying relatives as the father, mother’s father, father’s father or elder brother, but never to the mother’s brother.

The sacrificial pig is “circled” for and is killed with the spear.

Ten days later (*i.e.* several days later) *tear* is danced. This dance begins at sunrise on one day and lasts until sunrise on the following morning, the dance having been kept up all day and night.

On the evening before the *tear* begins the images are taken out of the club-house and planted in the dancing-ground, without either rope or stone circle. On the morning on which the *tear* ends, pigs are killed for the dancers and payment is made for—

The image.

The face of the image.

A new arm-badge (*hipebu*).

Hawks’ feathers.

Pig’s-tusk bracelet, worn on the left wrist.

¹ I know nothing about the form of these dances, but the name “*tear*” occurs in connection with the Maki in the Small Islands.

² An early note says *mbaka* wood. In one of my two accounts it is stated that there were four images, two carved with faces only and two with the whole figure of a man. I suspect, however, that my informant was thinking of a particular occasion on which four men may have been taking the degree together.

Red paint for the face (*niriter menat*).

A decoration painted on the thighs, consisting of curved stripes alternately red and black (*mbat ntus*).

The sacrificial pig is "circled" for and killed with a spear.

Note.—With the following degree we reach for the first time the doubling of the rite mentioned on p. 150, though from the appearance of *tear* in the degree just described, and from the name of that degree itself, it is very possible that the double rite begins there, but was omitted by my informant.

NO-ULAS (*NO-ULAS*) (*No-ulas* = name of a shrub: *no-ul* in Atchin = paint).—An image¹ of *niminda*² is erected inside the club-house. It is carved with two faces and painted red, white, and black, with a *vinu* leaf tied round its head. It is surrounded with a rope of the kind called *numbul*, with a young coco-nut tied to the front. *No-ulas* and *wandar* trees are planted beside the image. A yam, with a face modelled on it and covered with fowl's feathers, is placed at the foot of the image. Pigs are paid for—

The image.

The face of the image.

The young coco-nut.

The "opening" (*reseseven*).—If the door of the club-house is closed, and you ask a member of that club-house to open it for you, this is called *reseseven*. Thus, metaphorically, the buyer pays for the "opening" of, or right of entry into, the enclosure formed by the *numbul*.

Vinu, the leaf tied round the head of the image.

The face of the yam (*mo-on mbat-an*).

The *numbul* rope.

The spear.

Two sacrificial pigs³ are killed with the spear, one for the *numbul* and one for the yam.

Ten days later, the image is taken out of the club-house and erected. This ceremony is called *mo-at taru*. Payment is made for the *mo-at taru*. A sacrificial pig is killed with the spear.

On a subsequent day tree-ferns are cut, and images made from them carved represent the complete human figure. Pigs are paid for—

The face of the image.

Tema's nembu, the body of the image.

A small sacrificial pig is killed with a pig-knife.

¹ Second account says "three."

² First account says "tree-fern."

³ From here onwards, for the sake of brevity, I omit mention of the "trading" which is the invariable accompaniment to the killing of a sacrificial pig.

Ten days later the tree-fern image is planted with *no-ulas* and *na-ari* trees. *Teur* is danced from the next to the following morning, when pigs are killed for the dancers, and payment is made for—

A new pig's-tusk bracelet, to be worn on the wrist.

The spear.

Hawks' feathers.

Red paint—this time for use on **any part of the body**.

A new arm-badge (*binben*).

The sacrificial pig is killed with a spear.

MBATURU (**MBATURU**) (=two heads).—Two tree-fern images (Pl. XIV, Fig. 2) are erected inside the club-house, carved to represent the whole human figure, and painted red, white, and black, with an umbrella-palm (*niriviu*) leaf tied round the head to represent a *nakambat* head-covering.¹ They are surrounded by the rope called *numbul*, to which are attached an umbrella-palm leaf and a young coco-nut. A yam with a face modelled on it, and crowned with fowls' feathers, is placed at the foot of the rope. Pigs are paid for—

The yam.

The yam's face.

The young coco-nut.

During the subsequent "circling" the novice (?) dances round with the yam before placing it at the foot of the rope. Two pigs are killed with the spear—one for the *numbul* and one for the yam.

On a subsequent day new tree-ferns are brought and carved as before.

Ten days later a pent-roof (*i.e.* half a house), called *na-samp*, is erected over the tree-fern images inside the club-house. Pigs are paid for—

The pent-roof.

The whole man carved on the image.

The single sacrificial pig is killed with a spear.

On a subsequent day is the ceremony called *na-ai ncreur* (*ncreur* = bow). A big hole is dug close to the main road approaching the village, and the foremost novice re-makes the images proper to all the degrees that he has already taken. All the other buyers do the same, for the degrees that *they* have taken, and all the images are erected in the hole. Crowning these is a long bamboo with a coco-nut leaf stuck on the top of it (*nuwan mushi*), "to show all comers how holy (*lew*) the place is on account of the *mbatura*."

Ten days later, during the evening, all the images, which have been screened by the pent-roof in the club-house, are taken out and planted in the dancing-ground. Dry leaves are placed inside the pent-roof, and it is burnt.

¹ See p. 180.

Teur is danced from the next to the following morning. Pigs are killed for the dancers, and payment is made for—

The pig's-tusk bracelet, worn on the wrist.

A new arm-badge (*bin!ou*).

Hawks' feathers.

White fowls' feathers (*nimou meous*).

The umbrella-palm leaf.

Leaves worn in the back of the belt, called *nimelu*.

Large bow (*nereur*). Before Mbaturu, a man may not have a big bow.

It is a question of size, not of shape. An interesting point is the right to a *small* bow acquired in the subsequent degree of Mbalmbal.

This will be discussed on p. 196.

Rattles (*nawaparangk*) worn on the ankles for dancing.¹

Red paint for the whole body.

Spear.

Note.—In my first short account it is stated that no women are allowed to witness this ceremony, but whether this applies to the whole rite, or only that part of it which takes place inside the club-house, I do not know.

TAR-LENGGOR (TANEMWELIW) (*tep* = ground; *lew* = poisoned arrow with human bone-tip; *tar* is the word for dancing with outstretched arms, the hands turned outwards and upwards, a position which in Atchin represents a hawk; *Lenunggor* is the name of a place between Seniang and Tolman Island).

In this degree we have the erratic appearance of the stone circle, otherwise reserved for the higher degrees from Nimweil upwards. This takes the place of the usual rope, and encloses a newly planted tree called *padar*, and a croton (*na-ai limbr*) of a kind called *ni-mel war*. Another unusual feature is that in front of this circle is planted a small image of *niminda* wood, this being the only case I know of in which the image is altogether outside the enclosure.

The face of the image is painted red, and on to its head is tied a leaf of the umbrella-palm (*niricin*). This leaf is called in this instance "*nititi*," which means "a baby," and is so called because it represents the head-covering (*nakumbat*) placed on the heads of images in the higher degrees, the present degree being as yet "small" for the complete article.

A coco-nut leaf is placed leaning against the image to represent a house. Pigs are paid for—

The image.

The face of the image.

The umbrella-palm leaf.

The "opening" (*reseseren*) of the coco-nut leaf, which represents a house.

The stone circle.

¹ Made of the dried shell of the fruit of the *pingium edule*.

Two small pigs are sacrificially killed with a pig-killer, one for the image and one for the stone circle.

On a subsequent day, in the evening, one image is erected for each novice, again in front of the stone circle, and a *nendur* tree (or bush) is planted inside the circle (Pl. XIV, Fig. 3). The novice (?) dances holding a spear and a *nendur* tree, while the gongs beat a rhythm called "*rengge-ngge*" (onomatopœic for the sound of the gong), after which he plants the tree. *Teur* is danced from the next to the following morning. Pigs are killed for the dancers, and payment is made for—

Hawks' feathers.

Arm-badge (*nimwiteu memal*).

Red paint for the face.

Pig's-tusk bracelet.

Spear.

Image.

Decorations (*mbat ntus*) as in Na'avuntal.

The sacrificial pig is killed with the spear.

Note.—On examining my photographs, I find one about which I can find no notes whatever, and which is reproduced on Pl. XIV, Fig. 4. It represents an oval platform of stones 10 or 12 feet long, with a rough monolith at the head Masingraniew, one of my informants, is standing behind it. It is labelled "Tanemweliw," but beyond that I can offer no information regarding it.

MATELAU (NELIWIS) (*neliwis* is the part of the leg immediately below the knee, and the right of wearing the *binben* as a garter is bought with this degree: *Matelau* = (?)). Four images of *niminda* wood, carved with the whole figure, are erected inside the club-house. To their bases are tied wild cane (*nauwi*), a red flower called *mbwingbwing-amp* (*achyranthes aspera*) and umbrella-palm (*niriviu*). At the base of the image is placed a yam with a face modelled on it and a digging-stick (*nawan buttie*) made of wood called *nimwin mwengk*. Round the whole is a rope of the kind called *numbul*, with a young coco-nut hanging in front. A coco-nut leaf is leant against the image to represent a house. Pigs are paid for—

The "opening."

The rope.

The digging-stick.

The face of the yam.

Two sacrificial pigs are killed with a spear, one for the rope and another for the yam.

Ten days later is the ceremony called "*na-ai-tur-ne*." The images are taken out of the club-house and planted in the dancing-ground. A single pig is killed with a pig-killer for the *na-ai-tur-ne*.

On a subsequent day several tree-fern images are carved with a whole figure, into which a wooden nose-stick (*na-ai nggunguno*) is inserted. Pigs are paid for—

The face on the image.

The body of the image.

The nose stick.

Brushing down the image after carving (*na-ai sasarei*). This is not done in the smaller degrees.

The sacrificial pig is killed with a pig-killer.

Ten days later images¹ are erected, and shrubs of *na-ai limbr* (croton), *na-ari-tamat* (? cordyline), *na-ari-mbrues* (cordyline terminalis), *nirivin* (umbrella palm), and *mbwinghwing-amp* (? achyranthes aspera) are planted round. *Tear* is danced from the next to the following morning. Pigs are killed for the dancers, and payment is made for—

The image.

Pig's-tusk bracelet.

A garter (*binben*).

Spear.

Penis wrapper (*na-av-ap*), woven by women.

Hawks' feathers.

Paint.

A sacrificial pig is killed with a spear.

WET-NDUM (NE-WET) (*ne-wet* = stone, *ndum* = (?)).—A bundle of wild cane is tied up with a small plant of *na-ai-lisliis mbat mes*, and a yam bound with a similar plant is laid at its feet. Pigs are paid for the—

Wild cane.

Na-ai-lisliis.

Yam.

Two sacrificial pigs are killed with a pig-killer—one for the cane and one for the yam.

On a subsequent day a pole of *nator* wood, about 10 feet high and uncarved, is planted obliquely, leaning out towards the gongs, and a young coco-nut (*numbumai*), suspended from the top by a rope of coco-nut sinnet. Bound with sinnet to three sides of the pole are bundles of bamboo (*nambu or-temes*), and to the front a shoot of *na-ari-mbrues* (cordyline terminalis). Behind this is erected the diminutive monolith (*ne-wet*) (Pl. XV, Fig. 3), which gives its name to the degree. It is about

¹ It is not clear whether these are the same or new ones.

2 feet high and is called *no-usun*, "phallus": it is oval in section and tapers to a blunt point, with the representation of a human face incised on one surface. Pigs are paid for—

The pig-killer.

The young coco-nut.

Pig's-tusk bracelet worn on wrist.

Hawks' feathers.

Na-ai-lisli.

The phallic stone.

The sacrificial pig is killed with the pig-killer.

I have another early note in connection with this degree of a black stone (? pebble), also called *ne-wet*, decorated in white with a single-line design representing a human face.

Note.—*Wet-ndum* is erratic in many ways. Its monolith is quite unlike all the others, and it is the only degree below *Mbalias* which possess one at all. In one way, however—its position in the sequence of degrees—it has turned out the exception that proves the rule, and it will be found prominent in the discussion which follows this account.

MBALMBAL (MBALMBAL).—*Mbal*, *bal*, or *pal* is the root throughout this region, meaning "to strike or kill ceremonially." The title of this degree would seem to refer to the pole that is erected during the course of the ceremony.¹

A plain stake of *nator* wood about 10 feet high is planted inclined towards the gongs. Hanging by a rope of coco-nut sinnet from the top of this is an object called *navanuvu*. This is a hollow cone about 8 feet long, manufactured on a bamboo frame, open at the lower end, covered with certain shiny leaves, and bound with coco-nut sinnet. (Pl. XV, Fig. 1.)

¹ Similar poles, called *palpal*, are erected in the middle of the dancing-ground at Atchin, and used for the support of the hawk-banners connected with the final stages of the Maki. External evidence shows that the use of the root *pal* in naming them is due to the fact that they are the posts to which important pigs are attached at the moment of sacrifice. These poles (there are generally several of them) form the central point for the round dances, as opposed to the general up-and-down dances, of the Maki. The central position in the dancing-ground is occupied in South West Bay by the gongs, the Atchin gongs being at the side. The normal manner of dancing in South West Bay is in a circular movement round the gongs; in Atchin, lengthways up and down. Certain dances in Atchin, however, notably towards the culmination of the Maki ceremonies, are circular round the *palpal*, and it will be an interesting point of study to determine their relationship with the dances of South West Bay.

Planted round the base of the stake are wild cane; bamboo called *nambu-or-temes*; *Na-ari-mbraes* (cordyline terminalis). Round these is a rope of the kind called *numbul*, interlaced with *net-tin-w* leaves.¹ Pigs are paid for—

The bamboo cone.

The rope.

The hoops binding the cone.

Small bow (*nereur*).

Na-a-lis-lis leaves worn round the head of the buyer.

White plaited waist-band (*nagatut*).

Black paint.

A turbo shell-armlet.

Hawks' feathers.

Pig's-tusk bracelet.

Mbalmbal (? the pole).

The dancers, "circling" for the sacrificial pig, hold pig-killer, spear, and bow. The pig is killed with a spear.

All this is done on one day, and there is no *teur*.

Note.—The account of this degree seems abnormally short, and it is probable that a second part has been omitted. It is clear, however, that this is in the nature of a preparatory degree for the next, and this may conceivably account for its shortness.

MEW-LANGAWUL (NI-MEW).—*Mew* means "feathers," and refers to the central object of the degree, which I have called a "feather cone." *Langawul* literally means "ten," but is used here in its colloquial sense of "great." The title would therefore bear the translation "Great Feather Cone."

Proceedings open with the cutting of the four bamboos (*nambu-ai*) for the framework (*nimbolo*) of the cone. These are taken into the club-house, and their heads are pointed and tied together and decorated with coco-nut leaves. One pig is paid for the cutting of the bamboos, a further sacrificial pig being killed without spear or pig-killer.

A few days later is the ceremony called *tembils ni-mew*. By means of the midribs of thatch-palm leaves (*noboliet*), and numerous ropes, this framework is manufactured into a long hollow cone about 10 feet long and 3 feet in diameter at the open end. This is subsequently covered² with the fowls' feathers from which both object and ceremony take their name. Binding the whole together are four main bands of liana (*ma-andel*). On the lower two of these are modelled three faces made of a composition of pounded *nembrol* root, with pigs' tusks inserted into the

¹ According to the definition given on p. 153, this would seem to be a contradiction in terms.

² My notes do not make it clear whether the fowls' feathers are on the outside or inside of the cone.

cheeks, and on the second from the top two similar faces (*no-on mew*).¹ Pigs are paid for—

The binding liana (*na-andel*).

The modelled faces (*rikikina*).

The pigs' tusks (*ulel*) inserted into the faces.

"Tailoring" (*retobon*), *i.e.* measuring the cone to fit the novices who are to be carried round in it (*see* below).

The spear.

The sacrificial pig is killed with the spear.

On a subsequent day is the ceremony called *nimaandrus*. Several tree-fern images, each carved with one face, are erected inside the club-house. On the head of each is placed a head-dress called *namban* similar to the mat (*nimbwen*) worn on the head by the wives of the Maki-men at Atchin. Bundles of leaves (? plants) called—

Na-ari tamat (? cordyline).

Mweil mbong (codiæum variegatum),

Nimelu (? kava plant),

are planted at the foot of the image.

Pigs are paid for—

The image.

The face on the image (*rekikina*).

The plants.

The sacrificial pig is killed with the spear.

On a subsequent day is the ceremony called *temes pitpit*. Several tree-fern images (? the same, or different) are carved with the whole human figure, into the nose of which a nose-stick of white wood (*nirvin balamint*) is inserted. Pigs are paid for—

The whole figure on the image.

The nose-stick.

Ten days later, in the morning, these images are planted, and round them shrubs of—

Na-ari tamat (? cordyline).

Mweil mbong (codiæum variegatum).

Nirvin (umbrella palm).

Nimbringbwing-amp (? achyranthes aspera).

Nimelu (? kava plant).

¹ The illustration on Pl. XV, Fig. 1, shows the preparatory cone made in the previous degree. I had not the good fortune to see a real feather cone.

Teur is danced from daybreak until about 3 p.m. Pigs are killed for the dancers, and others are paid for—(list omitted).

On a subsequent day we find a repetition of the ceremony called *na-ai nereur*, which we have already seen in the degree of Mbaturu. A hole is dug in the bush close to the road, and images proper to all the degrees already taken by novices are erected and surmounted by a bamboo pole (*navan mushi*) from the top of which a coco-nut leaf is suspended.

Teur is again danced from daybreak until about 3 p.m. Pigs are killed for the dancers, and payment is made for—

The *na-ai nereur*.

The bamboo (*navan mushi*) erected with the images.

The *nimelu* (? kava) shrub.

The sacrificial pig is killed with the spear.

On a subsequent day, in the evening, the feather cone is taken out of the clubhouse and suspended from a high pole of *na-tor* wood erected at the side of the dancing-ground. This pole is called *tortor* (a reduplication of the word *na-tor*), and is carved with a number of human faces and figures.

A *tortor* pole at Bwinembar is said to be carved with seven human figures, and at the bottom a face upside down. Another pole is said to be carved with three whole figures, three faces, and a face upside down at the bottom. In Pl. XV, Fig. 2, one of these poles can be seen, carved, from top to bottom, with a whole figure, a face, a face, a whole figure, a face, a face, a whole figure.¹

A coco-nut leaf is placed over the open end of the cone, and round the base of the pole are planted shrubs of—

Na-ari tamat (? cordyline).

Nimboringburing-amp (? *achyranthes aspera*).

Mred mbouy (*codium variegatum*).

Nirivu (umbrella palm).

Nimela (? kava plant).

Teur is danced from the next to the following morning. Pigs are killed for the dancers. Then all the novices crawl into the feather cone, in which they are carried round the gongs by all present. If there are too many novices to be carried round at one time—say, ten of them—then five creep into the cone and out again, and then the remaining five creep in and are carried round. All, however, are considered to have been carried round. Gongs are beaten with the rhythm called “*rengengege*.” Pigs are paid for—

Pig's-tusk bracelet.

A new arm-badge (*bunbun*). (See Pl. XVIII, Fig. 2, A and C.)

¹ A similar pole is figured in Spenser's *Ethnographische Mittheilungen von Neuen Hebriden und den Banks-Inseln*, pl. 100, fig. 2.

Spear.

Hawks' feathers.

Pig-killer.

Paint (*newatwar*).

Ankle rattles.

The sacrificial pig is killed with the spear.

At some period during the taking of this degree the novice holds in his hand a conch-shell trumpet to which is attached a composition face with projecting spikes. (Pl. XIX, Fig. 3.)¹

Stone-Using Degrees

Note.—We now arrive at the series of degrees having the same name as those in present or recent use in the Small Islands on the north-east coast of Malekula. They are characterized by the use of the stone circle, hitherto seen only in the eccentric degree of Tarlenuinggor. The central object in the first is the cycas which gives its name to the degree. This is accompanied by a tree called *malandre*, which apparently remains constant in the first half of all the subsequent degrees. With Mbalias we reach the full-sized monolith.

NIMWEIL (NIMWEIL) (*nimweil* = cycas).—A cycas and *malandr* tree are planted and surrounded with a stone circle (Pl. XV, Fig. 4). The front stone of the circle, which, when it surrounds an image, is phallic, is here called "face stone" (*mo-on ne-wet*). Leaning against the cycas or the "face-stone" is a coco-nut leaf representing a house. Pigs are paid for—

The stone circle.

The cycas.

The *malandr* tree.

Digging-stick (*nawan botie*).

The "opening."

The sacrificial pig is killed with the "stone's child."²

All the Mates touch this stone before the Companion kills the pig with it.

On a subsequent day, in the evening, a larger cycas is planted close to the dancing-ground and not far from the stone circle. On to the stem of it is tied a modelled face called *no-on temes* (face of a "ghost," or dead man). *Tear* is danced from the next to the following morning. Pigs are killed for the dancers, and payment is made for—

Pig's-tusk bracelet.

Hawks' feathers.

A new girdle (*netel nimweil*) worn outside the bark-belt (*tiswetip*).

¹ See Cambridge Museum specimens : Nos. 1916.126.265 : and 1919.5.206.

² This is the only case I know of in which the stone's child is used for this purpose.

***Malandr* leaves worn in the back of the belt.**

A new penis wrapper (*na-ar-up mureil*).

Paint (*nima al woremel*).

A new arm-badge.

The sacrificial pig is killed with a spear.

Note.—Here, unfortunately, ends my second and fuller account of the Menggi, so that for the remaining important degrees I have only my first very erratic account to go on.

MULUWUN (NE-WELWEL).—This is the degree which in every part of this region of which I have knowledge immediately precedes or preceded the chief degree of Mal. In Vao it was Mwileun, and in Atchin, Mulon (in these two islands it is now obsolete); in Wala it is Mulun, and in Ambrim (Sulol) Mweleun. It is said by the natives of the Small Islands that a variant of the word is the title of the "chiefs" of the Big Nambas who inhabit the northern plateau of Malekula. I have no suggestion to make regarding the derivation of the word.¹ *Wel* is the root in general use in the Small Islands for "dance."

A *malandr* tree is planted and enclosed by a stone circle. I have no account of what payments are made, but an arm-badge belonging to this degree is figured on Pl. XVIII, Fig. 2, B. A sacrificial pig is killed in honour of the *malandr* tree.

On a subsequent day, an image, made of *wbetep* wood, carved to represent a human figure painted red, white, and black, is erected in another village.² A pent-roof is erected over it, as also over the stone circle in the home village. *Tur* is danced from sunrise to sunrise the following morning.

MBALLAS (NA-AMEL WON).—This is the first degree of the many which take the title of Mbalias. *Mbal* corresponds to *mal*, which is the name of the corresponding degree in all other parts of this region with which I am acquainted (*see* p. 143).

The additional *ias* is interesting, in view of evidence from Atchin and Pentecost, showing that this is a title connected with an earlier stratum of culture, the discussion of which is impossible in the present instance.³

The descriptive name means "holy club-house." *Amel* is the local word for club-house. *Won* is an introduced word, meaning taboo, or "holy": it is related to *kon*, as used in Amb-kon, the title of the first degree, which means "holy fire."

¹ Mr. Ray tells me that *wunur*, or *huna*, is an Indonesian and Melanesian root for "kill," and suggests that the word may be a combination of this with *mal*, also meaning "kill."

² *See* below, p. 204.

³ In Pentecost, *Ias* is the title of those who have slain an enemy in battle and are the heroes of the subsequent feast. In Atchin, *Ias* is the primeval man-eating ogre who is overcome by two brothers whose title is Mal, and who represent the incoming pig-killing culture. It may be that in the combination of the two titles in South West Bay we are in the presence of a compromise between the two cultures.

The same form of the word is found in the Small Islands in such expressions as *u'iu won*, a special house reserved for the use of unmarried men, and implying the same taboo. It is interesting to note in these two titles the use of the foreign word for "holy" as opposed to the local word *lew* or *le-o* used in the descriptive names of the two earliest degrees.

A *malandr* tree is planted and surrounded by a stone circle, as for Muluwun. Each stone of the circle has a "stone's child." Pigs are paid for—

The *malandr* tree.

The stone circle.

The "opening."

The stone's child.

A house is built over the stone circle, and is called "*u'at-amel won*," "The opening" in this case is paid for the actual door of the house to be opened. A sacrificial pig is killed.

Ten days later¹ *Tear* is danced from sunrise to sunrise on the following day. An image made of *mbetep* wood, and called *temes na-amel won*, painted red, white, and black, is erected. This image is usually erected in another village,² but it may be put up in the man's own village.

The image is surrounded by a stone circle, and image and circle have another house built over them. This house, also called *na-amel won*, consists only of roof, both back and front being open. It has a roof-pole (*nai-humbwen*) made of tree-fern. The image and the projecting end of the roof-pole have each the head-covering called *nakambat*, made of spider's web. Payment of large pigs is made for—(list omitted).

Note.—This account entirely omits any mention of the monolith which (apart from the isolated and otherwise erratic case of *wet-ndum*) here makes its appearance for the first time. A photograph of a monolith erected during this degree can be seen, however, in Pl. XVI, Fig. 3.

Post-Mbalias Degrees.

Note.—We have now reached the highest title obtainable. Subsequent degrees continue to confer the title either of Muluwun or Mbalias. The order in which they are taken can be seen in the lists given on p. 192 and discussed on p. 198. For the sake of comparison I have grouped them here according to title. Two degrees conferring what are apparently foreign titles are placed at the end. Muluwun Sumburan holds a peculiar position, and will be placed in a class by itself.

¹ If pigs are lacking it will probably be longer.

² See p. 204.

MULWUN SUMBURAN (MULWUN SUMBURAN).—*Sumb* is a root of very great interest. It is related to *supur*, and can be traced throughout the New Hebrides and Banks Islands in connection with a large variety of venerated objects. In Atchin the word *na-sup* is that in general use for an old man, so that it might not be incorrect to translate this title as "Old Man Muluwun."

A *malandr* tree is planted and surrounded by a stone circle. Pigs are paid for—

The *malandr* tree.

The stone circle.

The stone's child.

The "opening."

A single sacrificial pig is killed.

Ten days later, *teur* is danced from sunrise to sunrise the following morning.

On the previous day the ground is swept by men and women, and in the evening an image, made of *mbetep* wood, carved with a whole figure, and painted in three colours, is erected. A house is built over it. On the head of the image, and hanging down its back, is the head-covering called *nakambat*, made of spider's web, and resting on this is a roof-pole of tree-fern (*na-ai 'umbwen*), carved to represent a man, also painted in three colours. Through a hole in the middle of the image is placed another "roof-pole," carved and painted as the first. (Pl. XVI, Fig. 2.)

The man who first made this degree said: "The first *na-ai 'umbwen* is to protect ('look out along') the lower *na-ai 'umbwen*, and these two together are to protect the big image." Each of these, as well as the image, wears the spider's-web head-covering called *nakambat*.

The image is surrounded by a stone circle, with the usual phallic stone. Image and stone circle are covered by a house called *Na-amel vin muluwun samburan*.

Teur having been danced from dawn to dawn, pigs are paid for—

The house (*amel*).

A turbo shell-armlet.

The head-covering.

A pig's tusk worn above the elbow (*subscapularis*).

A pig's tusk worn on the wrist.

A plaited fillet (*petel-os-os*, or *petel muluwun*). This is the same as the Atchin girdle (*petur*), and is bought from the women of Lumbumbu, and used for binding on the head-covering of the image.

A girdle (*petel tiratip*) worn round the waist outside the bark belt.

A new penis wrapper (*na-ar-ep muluwun*).

The image.

Circles painted on the face (*amburambur*).

A new arm-badge.

A plaited band (*netel sas*) worn over the left shoulder, and under the right armpit like a diplomatic decoration.

The sacrificial pig must be one of great value.

Other degrees taking the title of MULUWUN.

My information regarding the remaining degrees taking the title of Muluwun is very slight.

For *NITAMBAP* a tree-fern image called *temes sambsamb* is erected. The name of the image consists of a reduplication of the important root referred to in connection with Muluwun Sumburan.

Regarding *MULUWUN LANGAWUL*, I have no information at all. It is said to be a very great degree performed far away in the bush. My informants have always heard of it, but never seen it. The word "*langawul*" is the same as that seen in the title Mew-langawul, meaning literally "ten," but colloquially "great."

The remaining degrees, apart from two of recent foreign origin, take the title of Mbalias.

Other degrees taking the title of MBALIAS.

NA-AMEL NDARLAMP (*amel* means "club-house"; *lamp* means "many"; *n-dar* might be equivalent to "*tar*" in Tarlennunggor, and, if so, the descriptive name might be translated "club-house of many dances," but I cannot vouch for this.

A new club-house is built. Bound to the top of the ridge-pole, and projecting from under the eaves, is a small wooden image, and to the front end of each horizontal rafter (*nambu wivar*) supporting the roof is attached the representation of a human face.

On a subsequent occasion takes place the ceremony called *rasang ni temes*. An unpainted tree-fern image, with a pig's tusk through its nose and wearing a spider's-web head-covering (*pakambat*), is attached, this time, to the under side of the ridge-pole and projecting considerably farther beyond the eaves than the small image mentioned above.¹ Pigs are paid for—

The head-covering.

The pig's tusk in the nose of the image (*na-ai ngginqqun*).

Hawks' feathers, placed on the head of the image.

On a subsequent occasion a plain monolith, called a phallus (*nousun*) and surmounted by a stone's child, is erected in front of the club-house (Pl. XVI, Fig. 4). A pig is paid for the stone and for the stone's child.

¹ One of these images can be seen hanging from the apex of the club-house at Bwinembar, figured in Pl. XIV, Fig. 1. Its attachment has given way and it is hanging downwards.

Tear is danced from sunrise on one day to sunrise on the following morning. Pigs are paid for—

- Turbo-shell bracelet.
- A new arm-badge.
- (Rest of list omitted.)

MBOT-MPARAMP.—This degree, although taking the title of Mbalias, derives its name, "long pole," from the erection of a long carved pole similar to the *tortor*, from which hangs the feather cone in the degree of Mew-langawul. A *malandr* tree is planted, and surrounded by a stone circle. Leaning against the tree is placed a coco-nut leaf representing a house. Pigs are paid for—

- The *malandr* tree.
- The stone circle.
- The stone's child.
- The "opening" (*reseseweo*), by removal of the coco-nut leaf.

A single sacrificial pig is killed.

On a subsequent day, in the evening, a long *tortor* pole, carved with three human figures and three faces without figures (Pl. XV, Fig. 2), is erected. It is painted with circles of three colours, and on its head is attached a spider's-web head-covering (*pakambat*) tied on with a fillet called *netel-os-os*. It is surrounded by a stone circle, which has the usual phallic stone. A coco-nut leaf, representing a house, is leant against the image. *Tear* is danced from sunset to sunrise, and pigs are paid for—

- The topmost human figure.
- Painting the image (*nimbrumbrat*).
- The head-covering.
- The fillet, etc.

In Pl. XVI, Fig. 4, can be seen a monolith with a stone's child, said to have been erected during this degree, but my account makes no mention of it.

NEMBRUTUN NE-WET.—*Nembrutan* means "feet" and *ne-wet* "stone." A red croton (*na-ai limbr*) of a kind called *nitor ombrung*, and a shrub called *na-ari tamat* (? cordyline) are planted. A monolith is prepared, and pigs are paid for—

- The shaping of the stone (*re tutu ne-wet*)
- The stone's child.
- The croton.
- The *na-ari tamat* (? cordyline).

A single sacrificial pig is killed.

On a subsequent evening the stone is erected, and *tear* is danced from sunrise to sunrise. This stone is said not to be phallic. Pigs are paid for—

- The head-covering (not mentioned above).
- The fillet, etc.

NO-USUN AMEL.—*No-usun* means "phallic stone" and *amel* "club-house." The central point of this degree is the erection of a phallic monolith called *ni-hip*,¹ with a groove (*neteri*) extending up each side and over the top, and a stone's child resting on it.

NDUNDU LAMP.—*Lamp* means "big" or "many": the meaning of *ndundu* is unknown to me. I have no notes on this degree, save that a grooved monolith with stone's child is erected.

NE-WET NAMBAR or **NA-AMEL NAMBAR**—*Ne-wet* means "stone," *na-amel* "club-house," and *nambar* "blind."

A *malandr* tree is planted and surrounded by a stone circle. Pigs are paid for—

- The stone circle.
- The stone's child.
- The "opening."
- The *malandr*.

A single sacrificial pig is killed.

On a subsequent day a phallic monolith is erected in another village. Pigs are paid for—

- The head-covering (*nakambat*).
- Nambar, etc.

Teur is danced from sunrise only to sunset. A single sacrificial pig is killed.

On a subsequent day, a second stone,² called *ne-wet nambar*, and carved with the figure of a man (Pl. XVII, Fig. 1), is erected. It is enclosed by a stone circle, and a house (*na-amel nambar*) is built over it, with a ridge-pole of tree-fern carved with the figure of a man. A pig's tusk is inserted into the nose both of the stone figure and the tree-fern figure. *Teur* is danced from the next to the following morning. Novices are painted all over with white wood-ash pounded in water.

Note.—This is the highest degree taken by Aiso mba-ai of Bwinembar.

NO-USUN. "Phallus."—The central point is a monolith (*ni-hip*) carved with four faces, painted, and surmounted by a stone's child.

Pl. XVII, Fig. 2, shows a monolith carved with three faces, called "*na-amp shir*," confirming the title of *Mbalias*. There is no further identification in my notes, but it is possible that it belongs to this degree.

Note.—This brings us to the end of the degrees taking the title of *Mbalias*.

¹ This word *ni-hip* was given in relation to several of these stones, but I do not know what it signifies.

² In another account the stone is classed as a *ni-hip*, and is carved with a face only, and no body.

Taking the title of NA-MAL.

NE-WET MBAL (sacrificial stone) takes the title of *Na-mal*, which is the title corresponding to *Mbolias* in other parts of this region, and is presumably a recent acquisition.

The central point of this degree is the erection of a monolith (*ni-hip*) without groove, surmounted by a stone's child.

Taking the titles of NAMU and NERU.

My informant had heard of two further degrees, one called *Namu*, which appears to be similar to the degree of *Nembrutun Ne-wet*, with the addition of *malawlr* to the trees planted. The other is called *Neru Wenoungg*, and takes the title of *Neru*. Neither have been seen in this locality within living memory.

NMBIMB LEMWENEI may be another foreign degree, or else another name for the last mentioned.

Story Concerning the Origin of the Menggi.

The following story was given when asking about the origin of the Menggi:—

There is a village near Bwinembar, called Nemep, the inhabitants of which have all died out. There is now nothing left of it but a rotting club-house, from which, since no one living was interested in them, I bought some modelled skulls.

Here, once upon a time, there lived two boys. On the shore not far away lived a "man of high degree," called Atimis Malau. One day, when the two boys at Nemep were playing, they saw a hole in the ground. They each took a grass, called *nimwenei*, and put it into the hole. Inside the hole was a thing like a crab, called *mbumba-uu*.¹ The crab climbed up and shook one of the grasses. The boys pulled at the grass and out it came. Soon after, the other grass shook. They pulled it up and out ran a second crab. They replaced the grasses, and this happened time after time.

Now this man Atimis Malau lived at the bottom of this hole, and he looked up and saw the boys playing at the top: and he climbed up and caught hold of one of the grasses. One of the boys saw it moving and thought that it was another crab: so he pulled it up, and it was very heavy. He pulled and pulled and out came Atimis Malau.

Atimis thought in his heart, "If these two call me some bad name, very well, I will kill them. If they call me '*arru*' (grandfather), good, I will let them live." And when they saw him, they called out "*arru*." And he said, "You call me *arru*, my heart is glad. I will not kill you. I will let you live."

Now Nemep had already been populated, but only these two boys remained. Bwinembar was also populated at that time.

¹ Cf. *Wun-bumba-uu*, the wife of the Ambat, on p. 214.

Then Atimis went down the path to the shore, and returned and said, "Here is a yam for you to eat." He gave them the yam, saying, "Now I am going back to the shore. Soon I will return again."

He came back a third time and brought them a boar, and a sow, and a yam.

He returned a fourth time, and made these boys take the degree of Ambkon. But they bought the degree from their mother's brother, who came from a place called Tivutip.

He came back a fifth time, and made them take the degree of Binben. Again they paid their pigs to the mother's brother, who placed the *bibbu* (garter) on the boys' legs.

He came back again, and made them take the degree of Na-ambulo, and then Na-avuntal. Still they paid the pigs to their mother's brother.

Then he returned, and said, "Soon you boys are going to make a big Menggi. So it is well that I should incise your foreskin." Atimis performed the operation, but the pigs were paid to the mother's brother.

At this point in the degrees they started paying for paint.

Then he made them take all the other degrees, but in every case the pigs were paid to the mother's brother.

Atimis made them marry, it is not known whom. They remained at Nemep.

Then Atimis said to these two men, "Now I have made you do all these things, very well, you stay, and I will depart. This is your place." He went down to the shore and left them there.

And these two with their wives were the ancestors of all the people of Nemep. If Atimis had not existed, the village of Nemep would not have existed.

IV.

THE MENGGI (*contd.*).

Discussion.

The following discussion would in many respects be shorter if the evidence were fuller, and a morning's talk on the spot would solve many problems.

However, on examining and tabulating the facts, a surprising amount of order and information can be extracted from the foregoing very incomplete account.

1.—*Analysis of the Degrees.*

In the accompanying chart I have attempted a graphic representation of the main features of the foregoing account.

I now propose to analyse it, by picking out the different features one by one, and following them *horizontally* throughout the successive degrees. The arrangement will not necessarily be by relative importance of the objects, but will follow

the order which appears most suitable for the presentation of the problems involved.

It has been explained on p. 151 how every object used in any ceremony, from the stone or image itself down to the smallest personal decoration, must be paid for in pigs by the novice, and how, in respect of similar objects of adornment worn in successive degrees, these must be paid for afresh each time.

I am not clear to what extent this repurchase denotes a new variation in the object paid for. Such variation undoubtedly exists in the class of objects called *biblon*. This is sometimes a plaited armband or garter, and in the higher degrees it becomes a bead arm-badge bearing each time a fresh design.

In the same way, paint is mentioned in successive degrees, but with the right of using it on different parts of the body or in different designs, and the frequent mention of hawks' feathers probably indicates the right in different degrees, of wearing them in a different fashion.

On the other hand, such objects as ankle-rattles and turbo-shell bracelets presumably remain the same throughout the successive degrees.

It was impossible, in a short account of the degrees such as I was able to obtain, to get anything like a complete list of objects bought. So I was forced to content myself for the moment with simply recording whatever was mentioned, hoping to have the opportunity later of going more fully into the matter. This, however, I was prevented from doing, and the best that can now be done is to examine each series of objects separately with the evidence at our disposal.

— — — — —

It will be seen that there is a general tendency for the appearance of some particular object in one of the higher degrees to be heralded in preceding degrees by a series of anticipatory symbols.

Feather Cone.

One of the clearest examples of this is the case of the feather cone in the degree of Mew-langawul, and its supporting pole of *pa-tor* wood. This pole appears in the degrees of Wet-ndum, Mbalmal and Mew-langawul.

It will be easiest to follow out the series backwards.

The object which gives its name to the final degree is a large hollow cone about 10 feet long and 3 feet in diameter at the lower end. It is bound with a special liana called *pa-undel*, covered with fowls' feathers and decorated with modelled faces adorned with pigs' tusks. In this hollow cone the novices are carried round the gongs prior to killing their pigs. Before the ceremony the cone is suspended from the top of a long pole called *tor-tor* (reduplication of the word *pa-tor*), which is planted at the side of the dancing-ground, leaning towards the gongs. This pole is completely covered with carvings of the human face and figure.

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




		FOREIGN TITLE OF NA-MAL	
NE-WET NAMBAR	NO-USUN	MBALIAS	NE-WET MBAL
 MALINDI			
 MALINDI			
 MALINDI	 MALINDI	 MALINDI	 MALINDI

CHART OF THE MENGJI DEGREES

In the previous degree, Mbalmbal, we find a smaller cone, about 5 feet long, this time covered with shiny leaves and bound with common coco-nut sinnet without further decoration. This is suspended from a plain pole of *na-tor* wood, placed in the same position as the carved pole in Mew-langawul, and round the base of the pole is planted, among other shrubs, a bundle of wild cane. I have no record of any use being made of this preliminary cone.

In the degree of Wet-ndum, a plain pole of *na-tor* wood is planted leaning towards the gongs, and this time there is attached to it nothing more striking than a young coco-nut.

Here it is clear that the feather cone in Mew-langawul is led up to by the anticipatory symbols of the coco-nut in Wet-ndum and the smaller cone in Mbalmbal,¹ while the pole supporting it, made in each case of the same wood, is plain in the two earlier degrees, and elaborately carved in the last.

I now propose to take a series of similarly connected objects, leading up to the important head-covering called *nakambat*, and trace their progression throughout the degrees.

Nakambat. (Spider's-web head-covering.)

This is the name of a spider's-web head-covering placed, in certain of the higher degrees, on the head of the image, and I propose to take this series in its correct order.

The first degree in which any head-covering for the image is mentioned is Xo-ulas,² which in the story of the origin of the Menggi (p. 175) is the first of the "big" degrees. Here a *rinu* leaf is tied round the head of the image.

In Mbaturu its place is taken by a leaf of the umbrella-palm (*niriviu*).

In Tar-lenunggor an umbrella-palm leaf is again tied to the head of the image and called *ni-titei* (baby), because it represents a "baby" *nakambat*, this degree "being too small for a real *nakambat*."

In Matelau there is no mention of anything on the head of the image, but this is probably an omission, since an umbrella-palm is tied to its base.

There is no mention of any head-covering in Wet-ndum or Mbalmbal.

In Mew-langawul the image wears "a head-dress called *namban*, similar to the mat (*puuburu*) worn on the head by the wives of the Maki-men (*i.e.* those who have taken the degree) on Atchin." This word *namban* is also used for the mats in which the dead are wrapped (*see* p. 206).

There is no mention of a head-covering in Ninweil or Muluwun.

¹ This series will be found dealt with more fully and from another point of view on p. 194.

² In Barangba there is mention of the purchase of a leaf called *na-ai-lashis*, which is used in the higher degrees for tying on the *nakambat*, but in this degree is worn round the head of the image. There is no mention of its being placed on the head of the image, and it occurs in connection with the planting of the wild canes, and not with the erection of the image.

Not till Na-amel-won the first of the Mbalias degrees, do we find the true *nakambat*, which is described as "a head-covering made of spiders' web," and is similar to the spiders'-web coverings attached by means of a fillet to the heads of the dead when preserved in the club-houses (see Pl. XIX, Fig. 4).

In Muluwun Sumburan also the image wears "a head-covering (*nakambat*) made of spiders' web, hanging down its back." The carved head of both ridge-pole and the pole projecting through the body of the image wear a similar head-covering. All these are tied on by means of a plaited fillet called *netel*. This corresponds to the Atchin word *netur*, a fillet used for the same purpose by the women of the Small Islands. Those used in South West Bay are bought from the women of Lumbumbu further up the coast, who obtain them from the Small Islands by way of the trade route across the neck of Malekula.

After Muluwun Sumburan, the *nakambat* is placed on the head of the image in every degree recorded in my account.

In regard to the earlier degrees after No-ulas, in which no head-covering of any kind is recorded, it must be remembered that the account is very sketchy, and these are probably cases of omission.

The evidence just summarized receives added significance when compared with that of the Maki in the Small Islands. It has been seen that in Mew-langawul the object placed on the head of the image is a mat called *namban*, said by my informant to be the same as the plaited head-covering (*nimbwen*) worn by the wives of the Maki-men in Atchin.

In Vao, the northernmost of the Small Islands, this covering is called *nabakmbak*.¹ If, in the word *nakambat*, I have misheard a final "k" for a "t," the two words would be equivalent.

Be that as it may, in my account of the ceremony in Atchin, it is stated that before putting on the real head-covering the wives of the Maki-men place on their heads a preliminary covering of *ropan* (umbrella-palm) and *pari* leaves. This, in the words of my informant there, is a "trial" for the real head-covering which they are shortly to wear.

Here, then, we have a remarkable parallel between the treatment of the images in South West Bay on the one hand, and of the wives of Maki-men in the Small Islands on the other. The mats worn in Atchin are preceded by "trial" head-coverings of umbrella-palm and *pari*, while the spiders'-web coverings of the images in the higher degrees in South West Bay are led up to by a mat, preceded in the earlier degrees by equally "trial" head-coverings of umbrella-palm and *pari* leaf.

Here, as in the case of the feather cone, the prototype is to be found in the higher degrees of the series, so that the lower degrees in this respect again assume a preparatory rôle.

¹ Connected with the word *pa-t* (to wear on the head).

On the authority of my Atchin informant, I propose, in the following pages, to continue referring to the anticipatory stages as "trial" objects.

The House over the Image ; and the "Opening."

At the first Mbalias degree, a house, called Na-amel-won (which means "Holy Club-house"), is erected over the stone circle and image. During the course of the preceding ceremonies we find a series of "trial" houses.

It is probable that every degree would have such a "trial" house, and that wherever this is not mentioned it is a case of omission.

In Tarlenunggor and Matelau there is mention of a coco-nut leaf leaning up against the image to represent the house.

In Mew-langawul this coco-nut leaf is placed in front of the opening of the cone.

In Mbaturu and Muluwun a pent-roof is placed over the image.

In all these cases and in that of the house itself there is a ceremony called *resesaren* (see p. 159) in which the house or "trial" house is "opened." The right of this has, of course, to be bought, much in the same way as we should pay for the "entrée" into a club. In the case of the "trial" houses this "opening" is symbolic. In the central degree of Na-amel-won, it is the actual door of the house which is opened.

An interesting case is in the post-Mbalias degree of Mbot-mparamp, which harks back to the coco-nut leaf. This may be due to the fact that it is connected with the earlier degree of the Mew-langawul.

I have taken the above three series first because they show in unmistakable manner the anticipatory nature of the preliminary, or "trial," objects.

I now propose to take the case of the ring surrounding the image, tree, or monolith which forms the central point of each degree.

*Rope and Stone Circle.*¹

In the first three degrees this is a rope supported on four posts and entwined with leaves called *na-airor*.

In all the following degrees up to Mew-langawul there we find a similar rope, this time entwined with coco-nut leaves.²

From Nimweil upwards (*i. e.* in the degrees with titles corresponding to those on the Small Islands) the place of this rope is taken by a stone circle.

On first examining this account it appeared doubtful whether the stone circle was an embellishment of the rope, or the rope an anticipatory symbol of the stone circle. In view of the pronounced tendency we have seen of systematically leading

¹ Where there is no mention of either in my account of a degree, this is certainly a case of omission. In the main account, the only cases of omission are Mweliwal and Mew-langawul.

² The single exception is Tar-lenunggor, which has a stone circle. The irregular position of this degree is fully discussed on p. 161.

up to an already conceived ultimate object by a series of "trial" objects, it would seem that the latter is almost certainly the case.

The rôle of the front stone of the circle in supplying the phallus of the image it surrounds, and its relation to the phallic monoliths, would tend to discount the idea of the stone circle being derived from the rope.

Note.—There are two objects of interest associated with the *numbul* rope, of the meaning of which I am ignorant.

One is the young coco-nut which is frequently (? always-) attached to it "like a bell."

The second is the yam with an artificial face modelled on it, and wearing a "head-dress" of fowls' feathers. This appears to be of considerable importance as, on occasions when a single pig would be killed for the *nimbren-oor* rope or the stone circle, two pigs are killed, one for the *numbul* and one for the yam.

The face on the yam appears to be modelled out of the same material that is used for modelling the faces of the dead.

This concludes the preliminary evidence regarding the anticipatory nature of the lower degrees, to which return will be made in the sections on the Order of the Degrees (p. 191) and Suggested Mechanism (p. 200).

The following six pages will be devoted to a tabulation of the remaining facts for future comparison, and do not enter into the general argument.

The Central Objects Erected.

Wooden Images.

I can draw no conclusion from the number of faces, human figures, etc., carved on the images, which seem to be quite erratic.

There is evidently some meaning in the kind of wood used. Here, again, I can draw no conclusions, but give below a list which may prove useful.

<i>Degree.</i>	<i>Wood.</i>
Ambkon	<i>Na-ari-mbal.</i>
Mweliwsal	Tree-fern.
Barangbie	<i>Na-tor.</i>
Andal	} <i>Nimula</i> (the second image in No-ulas and Matelau is of tree-fern).
No-ulas	
Mbaturu	
Tar-lenunggor	
Matelau	} These belong to the Feather Cone series, and in each the cone is suspended from a pole of <i>na-tor</i> wood. In Mew-langawul the pole is carved and called <i>tortor</i> . In the second part of this degree there is an image of tree-fern.
Wet-ndum	
Mbalmbal	
Mew-langawul	

In the degrees from Nnaweil upwards all the images mentioned are made of *mbetep* wood, which is also mentioned in one account as being used in Andel and Tar-lenunggor (the latter being the only one of the early degrees in which a stone circle is mentioned).

Thus *mbetep* wood seems definitely associated with the stone circle.

In this connection it is worth noting that the carved extensions to the ridge-pole of the house erected over the image in the higher degrees appear always to be of tree-fern.

Trees Planted.

The following is a list of trees planted as a central point in the degree and enclosed by a rope or stone circle:—

The wild cane (*mumun*) is planted in the degrees of Barangbie and Wetndum, though it is not definitely stated that it has rope or stone circle round it. These two degrees are the first of the series, discussed again on p. 194, connected with Feather Cone and pole of *na-tor* wood.

Cycas (*pimweil*) and *malandi* are planted in the degree of Nnaweil.

Malandi is planted in Muluwun Sumburan and the greater number of the Mbalias degrees.

Of the other trees or shrubs mentioned in the text I had material to identify only a few.

Na-ai is the general word for tree, wood, or shrub.

Na-ai limbr ('bad wood') is the general word for croton, of which there are several varieties mentioned.

Na-ari appears to be the general name for cordyline, and *na-ari mbrous* is cordyline terminalis.

Nimad mbouy is codium variegatum.

Nimbuwbuwung amp is (*Achyranthes aspera*).

Nimwilew is *bixa orellana*, the fruit of which Mr. Summerhayes tells me is used for red paint from Africa to America.

Nawawetangh, of which the fruit are used as ankle-rattles, is pangium edule.

Nawua is an umbrella-palm.

Namla is probably equivalent to the Achean *naba*, or kava-plant. Though kava is drunk by the Big Nambas in the northern plateau of Malekula, this use for it is unknown in the Small Islands, where the root is used for magical purposes.

Monoliths.

Except in the case of Wet-ndum,¹ isolated monoliths are peculiar to the Mbalias degrees, where they are the central figure, nor do they accompany the sporadic post-Mbalias appearance of degrees conferring the title of Muluwun.

They are thus exclusively Mbalias.

In the earlier Mbalias degrees they are uncarved: in No-usun Amel (Ndundu Lamp) a monolith is erected bearing a vertical groove up each side and over the top: this is followed in the next degree by a plain monolith, and then by one carved to represent the human figure. In the last degree of which I have any account there is mention of a monolith carved with four human faces, and I have a photograph showing a stone with three faces.

An interesting point that arises on examining the photographs—and it is borne out by the negative evidence of the account—is that only those monoliths which are carved with the human face or form have a stone circle round them, and this has a phallus surmounted by a stone's child as in the case of a circle surrounding a wooden image.

A point that is by no means clear is which of these monoliths, or to what extent any of them, are phallic. Connected with this is the question of the stone's child.

The case in regard to the fore-stone of a stone circle is quite clear. This stone is only a phallus when the circle surrounds an image. When surrounding a tree or shrub it is simply the "stone's face." The evidence of the photographs shows that in the latter case there is no stone's child, though this raises the unanswered question as to how the pig's tusk worn on the left wrist (see p. 119) is broken on these occasions.

When we come to the isolated monoliths the evidence is confusing, and I can detect no general principle. My notes on these higher degrees are extremely slight and I can only summarize the evidence as follows:—

Degree.	Monolith.	Status.
Na-amel won	Uncarved	Not stated.
Na-amel Ndarlamp	Uncarved	Phallic.
Mbot-mparamp	Uncarved	Phallic.
Nembrutan Ne-wet	Uncarved	Not phallic.
No-usun amel	Grooved	Phallic.
Ndundu lamp	Uncarved	Not phallic.
Ne-wet Mbal	(a) Uncarved	Phallic.
Ne-wet Nambat	(b) Carved with whole figure	Not stated.
No-usun	Four faces	Phallic.
(Photo)	Three faces	?

¹ I have no suggestion to make as to the small carved monolith in Wet-ndum, except to point out the markedly different style of workmanship, from that of the carved monoliths in the higher Mbalias degrees.

All these monoliths, whether carved or not, and phallus or not phallus are surmounted by a stone's child.

The two carved monoliths of which I have photographs both have a stone circle: the uncarved or grooved stones have none.

The phallic stone of each of the circles surrounding a carved monolith has a stone's child as well as the monolith itself.

Stone's Child.

The evidence in regard to the stone's child, when placed on the phallic stone of a circle, is as follows:—

- (1) It is called the stone's child.
- (2) It is used to break the old pig's tusk before the new one is placed on the wrist of the novice.
- (3) In a single instance, in the degree of Ninuweil, it is said that the stone's child is used for killing the pig.

Whether function (2) applies in the case of a stone's child placed on the central monolith I am unable to say.

The large monoliths, whether phallic or not (if indeed the evidence in this respect is correct), are all shown by the photographs to have a stone's child.

On the other hand, when the fore-stone of a circle is definitely not phallic (*i.e.* when the circle surrounds a tree), there is no stone's child.

The interesting question as to which of the above functions is the primary and which the secondary must, through lack of further evidence, go unanswered.

Note.—Having summarized the evidence in regard to the central objects of the degree, we can examine in turn the various objects of adornment or insignia of rank acquired by the novice during his progress through the degrees.

Insignia.

Paint.

In the story of Atimis and the origin of Menggi (p. 175) the boys started paying for paint in the degree of No-ulas. A shrub or tree of this name is planted in the degree, and "no-ul" in Atchin is the word for paint.

In the above account of the degrees paint is bought as follows:—

Andal	Red paint for the face called <i>nimwiteu memall</i> ¹ ; also <i>mbat-ptus</i> , a decoration painted on the thighs, consisting of alternate red and black stripes.
No-ulas	Red paint to be used on any part of the body. No-ulas tree planted.

¹ *Nimwiteu* is Bixa aretlana, which Mr. Summerhayes tells me is used throughout the Pacific for red paint.

Tar-lenunggor	..	(As Andal.)
Mbaturu	..	Red paint for any part of the body.
Matelau	..	Paint.
Mbalmbal	..	Black paint.
Mew-langawul	..	Paint called <i>newuta</i> .
Nimweil	..	Paint called <i>nima al worenwet</i> .
Muluwun Sumburan	..	Circles painted on the face.
Mbot-niparamp	..	Pointing the image (this is probably paid for in all the degrees, though only mentioned here).

Note.—The body of a dead man of the degree of Andal or upwards is painted red all over. If he has become Muluwun or Mbalias he is painted white (*see* p. 206).

*Ashes Used on the Body.*¹

I have two notes, as follows :—

In Barangbie the buyers of the degree are blackened with ashes.

In Ne-wet Nambar and Namu the buyers are covered with white ashes soaked in water.

Weapons.

The first record of paying for the spear with which a pig is killed occurs in Barangbie.

The only record of buying the wooden pig-killer occurs in Mew-langawul, but it is evident that whichever instrument is used must be paid for.

The use of spear or pig-killer for killing the pig depends, not on the degree, but on the size of the pig killed, smaller pigs being killed with pig-killer and larger ones with spear.

In Nimweil a pig is said to be killed with the "stone's child."

In Mbalmbal there is an isolated note that the buyer holds spear, pig-killer and bow while dancing for the pig, which is killed with a spear.

A curious feature is, that the right to a *large* bow is bought in Mbaturu, and the right to a *small* one in the subsequent degree of Mbalmbal. Like all apparent anomalies, it is proved to be perfectly logical, and provides an important link in the argument developed on p. 196.

Garter and Arm-badge (Biphen).

This word is apparently used for two kinds of objects. One is a string band made by women with a zig-zag pattern representing the chin of a flying-fox (*u'en*

¹ *Hand-pictures.*—I was told of a white cliff in Bamboo Bay, on the west coast, on which the natives, in passing, place their hand, and, blowing powdered charcoal on to it, leave a white image of the hand in a daub of black. The trader with whom I stayed in South West Bay told me that he had seen similar hand-pictures in a cave in Etromanga, where the dead were formerly buried. Here, the natives protested that they did not know how these images were produced, saying, "They just came there." Such hand-pictures are found in many parts of the world, and are associated with the Aurignacian and Magdalenian periods in Europe.

munggere). This is worn by any child on the arm, and in the degree of this name the right is bought of wearing it below the knee, as in our Order of the Garter. The other object called by this name is the arm-badge of white and black beads made respectively of shell and coco-nut shell, with geometrical designs. Each degree or at least the higher ones, has its own design.

The first purchase of a *binben* is made during the degree of that name, and this, as stated above, is for a string band worn as a garter. Frequent subsequent mention is made of the purchase of the *binben*, and, undoubtedly, in the case of the higher degrees, this refers to the bead arm-badge, though where the change comes I am unable to say.

I have photographs of bead arm-badges from the degree of Andal upwards, but in Matelau there is again mention of the purchase of a *binben* (presumably of the string variety) to be worn as a garter.

Of the badges illustrated in Pl. XVIII, Fig. 2, A and C belong to the degree of Mew-langawul. The double-diamonds are said to represent the operculum of a conch (*meten-tavu* = eye of a conch): the black triangle between the two wings of the diamonds are a small sea-shell called *mbrul*; the remaining part of C, i.e. that occupied by the three white triangles, is said to represent the face of a hawk (*m-mbal*): the large triangle is the forehead: the black space on either side the head-feathers: the middle triangle is the nose, and the black spaces on each side of it the eyes: the smallest triangle is the mouth, and the black space beneath that the chin. The explanation of the corresponding part of A was not so concise, but this also was said to represent a hawk.¹

B belongs to the degree of Muluwun. The separate diamonds are here again said to represent the operculum of a conch, while the white triangles are called pigs' jaws (*ni-en mbiques*). I have a record of another arm-badge, belonging to Muluwun Samburan, showing similar separate diamonds, which are there said to represent the wings of a butterfly (*pimburirivemp*).

The two smaller arm-badges, D and E, are said to belong to women, and I have no explanation of their design.

Puj's-task Bracelet. (Tiluarar.)

The word *tiluar* is also applied to the wooden bracer placed on a boy's wrist as his first step in ceremonial life (see p. 220), but it does not appear with this meaning in my account of the degrees.

¹ That this design should be said to represent the face of a hawk, and that the features described, in the mind of the narrator, except for the feathers, are clearly those of a man, is suggestive, in view of the great prominence of hawk-symbols in the Maki of the Small Islands and the purchase of hawks' feathers in the Menggi. It is interesting, too, that the word for the hawk is constant throughout Malekula, which demonstrates its immigrant origin, and is identical (*mbal* in South West Bay and *mbul* in Atchin) with the root which we have shown to mean "sacrificer" or "priest."

Here it refers to a pig's tusk worn as an ornament on the wrist. Its first appearance is in Andal, and henceforth it is mentioned as being paid for in nearly every degree. The manner of its exchange for the corresponding tusk worn in the previous degree is described on p. 149.

In Muluwun Sumburan the right is also bought of wearing it above the elbow (see Pl. XVII, Fig. 2), when it is called *sibunalis*.

Penis-Wrapper. (*Na-ar-ap*)

The purchase of a penis-wrapper is mentioned in Matelau, Nimweil and Muluwun Sumburan. These probably indicate payment for a wrapper of new design. The lack of mention in other degrees is probably a matter of omission.

Hawks' Feathers. (*Ni-mew nambal*.)

Mention of payment for hawks' feathers is first made in Matelau, and thenceforth it occurs in nearly every degree, probably with the right of wearing them in a new manner.

Fowls' Feathers. (*Ni-mew*.)

Fowls' feathers are mentioned in connection with the making of the Feather Cone and as crowning the face modelled on a yam, which is placed at the foot of the numbul rope in certain degrees (see Diagram of degrees). The only record of payment for them is in Mbaturu.

Digging-stick. (*Nawan britic*.)

Nose-stick. (*Na-ai nggungguno*.)

These are both paid for in Matelau.

Turbo-shell Bracelet. (*Nambu*.)

This is mentioned as being paid for in Muluwun Sumburan and Na-amel-ndarlamp.

Ankle-rattles. (*Nawanarangi* (pangum edule).)

These are mentioned as being paid for in Mbaturu and Mew-langawul.

Note.—This exhausts the list of personal adornments bought during the degrees. Before passing on to the discussion arising out of the order in which the degrees are taken, the following notes will not be out of place:—

Eats.

Before taking the degree of Ambkol, a boy will eat with his mother. On taking this degree he makes the only purchase of fire of which there is mention in my account, and henceforth eschews the maternal hearth.

After this my information is unsatisfactory, and reflects the decay into which the institution has fallen in recent years.

The following contradictory pieces of information were given to me by the same usually trustworthy informant : —

“ Men of each degree eat by themselves, but if a man has taken Mbaturu and then goes back to Andal, he can eat with men of both.”

“ Men who have taken any degree up to Tar-lenunggor can come to the feast for Ambkon, but those who have taken higher degrees could not eat the pigs of such a small degree.”

On the other hand—

“ Though a man who has taken Mbaturu cannot eat of a pig killed for Ambkon or Mwchwal, he could eat one killed for Barangbie.”

From this last piece of information it would look as though there was now no rigid demarcation of fires, but that there was simply a feeling that one could not eat with a man whose degree is too far removed from one's own.

It is probable, however, that enquiry would reveal a much stricter observance of fires in the case of the higher degrees.

Pigs.

My notes are lacking in precise information on the question of pigs, possibly because the grade of pig killed does not seem to have the same importance as it does in the Small Islands.

I have long lists of pig names, but they mostly appear to be purely descriptive.

The words *ni-mbrus* and *ne-mbruy* seem to be interchangeable, meaning “ pig.” *Ores* is a (♂ young) castrated pig.

For a short general account of the pig-culture of this region, the reader may refer to the Introduction (p. 114).

In the Small Islands there are four main grades of pig, classified according to the length of tusk. For the sake of comparison with other island-cultures, I have adopted the following technical terms : —

- (a) “ Crescent-tusker,” the tusks showing well, but only slightly curved. (Pl. XVIII, Fig. 1, A.)
- (b) “ Curved-tusker,” the tusk curved well round, but not yet piercing the cheek. (Pl. XVIII, Fig. 1, B.)
- (c) “ Re-entrant-tusker,” the tusk having curled round so as to pierce the cheek and touch the jaw. (Pl. XVIII, Fig. 1, C and D.)
- (d) “ Circle-tusker,” the tusk having pierced the jaw and pushed up again to the position of a “ crescent-tusker ” on its second round.

The only two grades which I was definitely able to distinguish in South West Bay were:—

Meuras for "crescent-tusker," and
Tsimb-tsimb for "re-entrant-tusker."

Other names frequently occurring were *tava* apparently representing a stage below *meuras*, and *tima-ap* representing a stage between *meuras* and *tsimb-tsimb*.

Class *tdi*, that of the "circle-tusker" so prominent in the Small Islands, is definitely not represented, the art of breeding such high-grade pigs being here unknown.

Since my notes on pigs are so unsatisfactory, I have omitted all mention of grades from the account of the degrees.

Although I obtained the names of many pigs killed for the different degrees, they presented no definite sequence, and it would therefore appear that the actual grade of pig killed is of comparatively little consequence, provided it be a tusker.

Conch Shell.

Conch shell hanging on to or close to the images are very prominent in the photographs, but I have no mention of them in the text.

In the Small Islands the conch is blown (in various prescribed manners) in honour of any pig that is ceremonially killed, and it would seem probable that this is the case here, the shell subsequently being placed on or close to the image.

"*Ten Days.*"

In the course of his account, my informant frequently introduced the phrase "ten days later such and such a thing is done." On enquiry it was always stated that "ten days later" is not to be taken literally, but really means "as soon as the necessary preparations can be made, pigs acquired, etc."

Other examples of a figurative use of the word "ten" meaning "much" or "great" have been noted in connection with the degrees Mew-langawul and Muluwun langawul.

This loose use of the word is in marked contrast to the very exact use of that and all numbers in the north-east coast, and the high development there of the whole decimal system.

2. *The Order of the Degrees.*

In the above analysis I have attempted to trace the various objects as they occur throughout the degrees.

I now propose to look at the matter from a different point of view, and examine the order in which the degrees are taken.

Below are tabulated six lists, obtained from different people, of the order in which the degrees have actually been taken.

Order of the Degrees up to Mbalias and Muluwun Simburan.

List 1.	List 2.	List 3.	List 4.	List 5.	List 6.
Ambkon ...	Ambkon ...	Ambkon ...	Ambkon ...		Ambkon.
Barangbue ...	Mweliwsal ...	Barangbue ...	Mweliwsal ...		Mweliwsal.
Mweliwsal ...	Barangbue ...	Mweliwsal ...	Barangbue ...		Barangbue.
Wet-andum ...	Wet-andum ...	Wet-andum ...			
Andal ...	Andal ...	No-nlas ...	Andal ...		Andal.
No-nlas ...	No-nlas ...	Andal ...	No-nlas ...		(Incision here, No-nlas, Paint into forehead.)
Mbaturn ...	Mbaturn ...	Tar-lemnggor ...	Mbaturn ...		Tar-lemnggor.
Tar-lemnggor ...	Tar-lemnggor ...	Mbaturn ...	Tar-lemnggor ...		→ Wet-andum, Mbaturn.
Mbalmbal ...	Mbalmbal ...	Mbalmbal ...	Matelan ...		Matelan.
Matelan ...	Matelan ...	Mew-langawul ...	→ Wet-andum Mbalmbal ...		Mbalmbal.
Mew-langawul ...	Mew-langawul ...	Matelan ...	Mew-langawul ...		Mew-langawul.
Nimweil ...	Nimweil ...	Nimweil ...	Nimweil ...	Nimweil ...	Nimweil
Muluwun ...	Muluwun ¹ ...	Muluwun ...	Muluwun ...	Muluwun ...	Muluwun
	Muluwun Simburan ...				Correspond to Small Island degree.
Mbalias ...	Mbalias ...	Mbalias (Na-amel won)	Mbalias ...	Mbalias (Na-amel won)	
		→ Muluwun Simburan	Muluwun Simburan	Muluwun Simburan	

¹ In Lists 1 and 2, Ne-welwel and Muluwun were given as the names of two separate degrees, whereas in my account Muluwun is the title and Ne-welwel the descriptive name of the same degree, and as such I have treated them. In Acheh (formerly) and Wala they are the names of two degrees.

List 1. From Tom, school-teacher at Benaui, who acted throughout as my informant. List 2. From Tom and Nandub. List 3. From the village of Batnetamp. List 4. From Tivlus, of Rahulemp, and Masingraniew, of Bymenlar. List 5. List of the higher degrees taken by Ambarambrang, of Batnetamp. List 6. Taken from the story of Atinis and the Origin of the Menggi.

N.B. The first of my two accounts of the degrees was obtained from Tivlus and Masingraniew. The second and fuller one, which I had not time to complete, was from Tivlus alone.

Only three of the lists include degrees above Muluwun Sumburan, and these are given below.¹

Order of the Degrees above Muluwun Sumburan.

List 3.	List 4.	List 5.
Na-amal Ndarlamp Na-amal Ndarlamp		
Nitambap —————		
Mbot-mparamp Mbot-mparamp Amel-mparamp.		
		—————→Nitambap (Muluwun).
Nembrutun Ne-wet Ne-wet Nu-mbo ?		
No-usun Amel Ne-wet No-usun.		
Ndundu lamp —————		Ndundu lamp.
Ne-wet Mbal —————	—————	Ne-wet Mbal.
Namel Nambar Ne-wet Nambar Namel Nambar.		
	Namu	
No-usun —————		No-usun.
	Muluwun langawul (Muluwun)	Ne-wet langawul.
	————→Ne-wet Mbal (Namal)	
	Neru wenoungg (Neru) ... Nambumb lemwenei.	

[N.B.—All the above degrees take the title of *Mbalias*, except where stated in brackets after the name.]

I was told by my informant that after Ambkon, which must be taken first, the degrees might be taken in any order up to Nimweil. However, on tabulating the lists of the order in which they have actually been taken by different individuals, it is seen that the change in the order is confined to much smaller groups. The following facts emerge :—

Ambkon is always first.

The order of Mwelisai and Barangbie is interchangeable.

Wet-ndum, in three lists, comes next. In the fourth account it comes before Mbalmal. In the fifth account it is placed before Mbaturu.

Andal and No-ulas are interchangeable. (In the story of Atimis and the origin of the Menggi, the boys were incised before No-ulas, because that was the first of the "big" Menggi.)

¹ An interesting point brought out in the lists of post-Mbalias degrees is the latitude permissible in the *descriptive* name of a degree. A degree is called No-usun (phallus) or Ne-wet (stone). Another is called Namel Nambar or Ne-wet Nambar, according to whether the informant happens to be thinking of the stone itself or the house (probably) erected over or by it.

Mbaturu and Tar-lenunggor are interchangeable.

Mbalmbal, Matelau and Mew-langawul are interchangeable.

The important degrees of Nimweil, Muluwun and Mbalias are invariably taken in this order.

These last are now regarded as the "big" degrees (in contrast to those lower ones regarded as "big" by Atimis (p. 175)). Nimweil means "cycas," a shrub which figures largely in ceremonial life throughout Melanesia. The titles Muluwun and Mbalias are the only ones common to all the series of degrees known to me in Malekula and Ambrim, in all of which they occupy a foremost position. In South West Bay all three are characterized by the use of the stone circle, and I therefore propose to refer to them collectively as the "stone-using group." With Mbalias itself we arrive at the erection of an isolated monolith.

The remaining degrees are variations on themes already introduced, and take the titles of Muluwun or Mbalias, with the exception of two only heard of by my informant as being performed in distant villages. Such variation as exists in the order in which they may be taken can best be seen by referring to the lists, those of variable position being those which do not take the title of Mbalias.

Muluwun Sumburan, as can be seen, may be taken before the first Mbalias degree.

Feather-cone Series.

Taking first the degrees up to and including Mew-langawul, it will be seen that, with the exception of the erratically placed Wet-ndum and the double move of Matelau, the position of the degrees is in practice only changed in pairs.

If we follow up the vagaries of Wet-ndum, we shall arrive at some interesting conclusions.

This appears, from its position in the first three lists, to be regarded as a "small" degree. In List 6 it has an intermediate position, while in List 4 it is found immediately preceding Mbalmbal. Here it falls into its natural position as one of the series connected with the Feather Cone which formed the point of departure for the argument developed in the last chapter (see p. 177).

Taking this series backwards, as before, it may be summarized as follows:—

Mew-langawul.	Mbalmbal.	Wet-ndum.
Large decorated cone supported on	Smaller undecorated cone supported on	Coco-nut (representing cone) supported on
Carved pole called <i>toi-tor</i>	... Plain pole of <i>na-tor</i> wood	... Plain pole of <i>na-tor</i> wood.

On referring to the chart of the degrees, it will be seen that Wet-ndum and Mbalmbal have a further feature in common, in that, with one exception, they

are the only degrees in which the wild cane is planted. The single exception is the early degree of Barangbie, which is also the only degree in which *na-tor* wood is used for making the image. Here the erection of the image is preceded, on a previous day, by the planting of wild cane in exactly the same way as in Wet-ndum; a similar planting of wild cane precedes the erection of the pole of *na-tor* wood. Moreover, the planting of wild cane is accompanied in both cases by the planting of another shrub called *na-ai-lislis*, and the only other mention of *na-ai-lislis* is in Mbalm-bal, where the right is bought of using it as a fillet.

Our summary can thus be amplified as follows :—

Mew-langawul.	Mbalm-bal.	Wet-ndum.	Barangbie.
Large decorated cone...	Smaller undecorated cone	Coco-nut (representing cone)	
Carved pole called <i>tor-tor</i>	Plain pole of <i>na-tor</i> wood	Plain pole of <i>na-tor</i> wood	Image of <i>na-tor</i> wood.
	Wild cane planted	Wild cane planted	Wild cane planted.
	<i>Na-ai-lislis</i> worn as fillet	<i>Na-ai-lislis</i> planted	<i>Na-ai-lislis</i> planted.

It is evident from this that the four degrees of Barangbie, Wet-ndum, Mbalm-bal, and Mew-langawul form a series leading up to the carrying round of novices in the Feather Cone in the last-named degree.¹ This series cuts right across the regular order of degrees, and accounts for the erratic position of Wet-ndum, which hovers between the widely separated degrees of Barangbie and Mbalm-bal.

It has been seen that the degrees of—

Barangbie.

Wet-ndum.

Mbalm-bal.

and Mew-langawul.

constitute a series, and that they are the only ones in the whole account which are concerned with—

- (a) Planting of the wild cane ;
- (b) The *na-ai-lislis* plant ;
- (c) Erecting an image or pole of *na-tor* wood ; and
- (d) The bamboo cone.

¹ The theme again appears in the post-Mbalias degree of Mbot-mparamp, during which a carved *tor-tor* pole is erected similar to that in Mew-langawul.

Also that the ceremony of being carried round in a Feather Cone is markedly different from the ceremonies connected with the other degrees.¹

Next to be noted are the following facts :—

Firstly, the title Barangbie is said to be a Tolman Island word, and the descriptive name of that degree is a duplication, in the language of that island, of the name of the first Seniang degree, both meaning "Holy Fire." Also it is stated that, though the degree is not bought from the mother's brothers and mother's fathers (as is the case with Ambkon), these relatives may assist in the work of making the image.

Secondly, in the degree of Mew-langawul, the last of our series, there is included the ceremony of erecting the images of all the degrees hitherto taken. This ceremony looks remarkably like the summing-up or end of a group of degrees. Mew-langawul is, in fact, the terminal degree of a group, differing in many ways from the stone-using group which follows.

Now, the only other degree in which this summing-up feature rather illogically appears is in Mbaturu.

Is it not possible, then, that Mbaturu also may at one time have been a terminal degree?

We now see that Ambkon is duplicated by Barangbie, and that Mbaturu, in respect of this distinctly summing-up feature, is duplicated by Mew-langawul.

Barangbie is admittedly of foreign origin, and the whole series of degrees leading up to the Bamboo Cone is of a character foreign to the rest of the Seniang ceremonies. It would seem, then, that in the Bamboo Cone series, comprising Barangbie, Wetndum, Mbalmbal and Mew-langawul, we have a series of parallel degrees introduced from without, and superimposed upon an indigenous system.

In the light of this hypothesis, let us examine certain apparent inconsistencies in our account of the degrees.

Mbaturu.

It will immediately explain the apparent anomaly of the buying of a *large* bow in Mbaturu, and of a *small* bow in the subsequent degree of Mbalmbal.

Mbalmbal is the degree with the small preparatory cone. If Mbaturu and Mew-langawul are the final degrees of two parallel series, then it would be natural to find the large bow bought in Mbaturu, while the small bow is bought in the really *anterior* (though, through its close connection with Mew-langawul, posteriorly placed) degree of Mbalmbal.

Andal and No-ulas.

On the same hypothesis of parallel degrees can be explained a hitherto unsolved problem. It was seen, in the story of Atimis and the origin of the Menggi, that

¹ The modelling, on the outside of the Feather Cone, of a number of human faces adorned with pigs' tusks, such as are modelled on the artificial wooden bodies attached to the made-up skulls of the noble dead inside the club-house, suggests the possibility that the cone itself represents an ancestor, and the ceremony a rebirth.

No-ulas was considered as the first of the "big" degrees, and was stated to be the first in which the right to use paint was acquired. According to the account, however, the right to use paint had already been acquired in Andal. Now, Andal is another foreign word, and the descriptive name of the degree is said to mean, in a foreign language, "they dance again" or "go back." Andal and No-ulas then appear as parallel degrees: Andal being adopted from outside, though not apparently in connection with the Feather-cone series.

Tar-lenunggor.

Finally, and still on the same hypothesis of parallel degrees, the anomalous position of Tar-lenunggor becomes plain. A glance at the chart will show in this degree, and apparently quite out of place, the stone circle and image of *mbetep* wood which are otherwise the exclusive features of the stone-using degrees from Nimweil upwards.

Now Tar-lenunggor follows Mbaturu: and the stone-using group follow Mew-langawul. Mbaturu and Mew-langawul are parallel summing-up degrees of what would then appear to be an old non-stone-using order, followed again by parallel examples of a new order characterized by the use of stone.

Of this new order, Tar-lenunggor would be the indigenous representative, while the stone-using group, consisting of Nimweil, Muhuwun, and Mbalias, would be associated with the introduced Feather-cone series.

We thus have now the following series of parallels:—

Indigenous. ¹				Introduced. ²				Common Feature.	
<i>Non-stone-using—</i>									
Ambkon	..	...	.	Barangbie	...	...	..	Fire.	—
Mwelwosal	...	..	...		—				—
No-ulas	..	..	.	Andal	...	...	...	Paint.	—
				Wet-ndum	...	...	...		—
				Mbalmbal (small bow)			...		—
Mbaturu (large bow)	..			Mew-langawul	...	..	.	Images of former degrees.	
<i>Stone-using—</i>									
				Nimweil	..	...	...	} Trees in stone-circle. Image of <i>mbetep</i> wood.	
Tar-lenunggor	.	...		Muhuwun	..	...	.
				Mbalias	..		.		

¹ The use of the word "indigenous" here and in the following discussion means simply "earliest known," and does not exclude the possibility of a yet earlier culture.

² In the list headed "Introduced," all except Andal belong to the series leading up to the Feather Cone in Mew-langawul. Wet-ndum and Mbalmbal, which are immediately concerned with leading up to the Feather Cone, have no parallels. There remains to be accounted for, in this place, only the degree of Matelau. In regard to this, I can make no suggestion, except as it is the only title for which I can obtain no translation, and as it is the most erratically placed degree after Wet-ndum, that it is probably of introduced origin.

Stone-using Degrees.

It has been seen that the degrees of the stone-using-group, *i.e.*—

Nimweil,
Muluwun,
and Mbalias,

are invariably taken in this order, and form the culminating point to which all the series of "trial" objects, except those connected with the Feather Cone, lead up. It would appear at first sight difficult to reconcile this with the suggestion that they are of late introduction, and this apparent anomaly will be found to provide a possible clue to the whole course of events.¹

Post-Mbalias Degrees.

In regard to the remaining post-Mbalias degrees, it will be seen that the greater number take the title of Mbalias, and that where mentioned these follow a regular order.

Leaving out of account the two degrees taking altogether foreign titles, we find that the only erratically placed degree is again one (Nitambap) which takes the title of Muluwun.

In all these degrees, where recorded, the first half of the rite consists in the erection of a *malawdr* tree, which is common to both original degrees of Muluwun and Mbalias. When we come to such records as we have of the rest of the rite, we find that in all those taking the title of Mbalias this is concerned with the erection of a monolith, whereas in the few degrees taking the title of Muluwun monoliths are not mentioned.

It would appear, then, that all these higher degrees are variants of the two degrees from which they derive their title, and that each set remains true to type.

We are now in a position to tabulate the complete set of degrees as follows :—

<i>Indigenous.</i>		<i>Introduced.</i>	
		(a) <i>Feather-cone series.</i>	(b) <i>Other source.</i>
<i>Group 1.</i>			
Bought from mother's brother	{ Ambkon Mweliwsal	Barangbie	
<i>Group 2.</i>			
Bought from any previous member	{ No-ulas Mbaturu	Wet-ndum Mbalmbal Mew-langawul	Andal ? Matelau

¹ See p. 200.

		<i>Indig. nouns.</i>		<i>Introductory.</i>	
				(a) <i>Frather-own series.</i>	(b) <i>Other sources.</i>
<i>Group 3.</i>					
Stone-using—					
(a) Stone-circle	...	{	Tar-lenuungor	Numweil	
(b) Stone-circle monolith	and			Muluwun	Mbalias
<i>Group 4.</i>					
		{	(a) <i>Muluwun series.</i> (No monoliths)	(b) <i>Mbalias series.</i> (Monoliths)	(c) <i>Other titles.</i>
			Muluwun Sumburan		
			Nitambap	Na-amel ndarlamp	
Post-Mbalias	...	{		Mbot-mparamp	
				Nembrutun ne-wet	
				No-usun Amel	
				Ndundu lamp	
				Ne-wet mbal	? Ne-wet mbal (Namal)
				Namel nambar	
				Namu	
			No-usun		
			Muluwun langawul		
					Neru wenoungg (Neru)

Mulwren and Mbalias.

There is one point connected with the post-Mbalias degrees that cannot fail to attract our attention.

As Mbaliás is the highest title, and is clearly of so much more importance than the other degrees in the possession of a monolith, and, as such, so much more desirable to elaborate, why should any of the subsequent degrees have been modelled after Muluwum?

In searching for an answer to this question, one is struck both by the name and position of the degree of Muluwun Sumburan. This degree holds a very special position, in that being, from a comparative point of view, clearly an additional degree, it is regarded locally as ranking at least as high as Mbalias. Its name, too, is significant. The word *Sumburan* is connected with a series of words ultimately related to *Supur*, and the equivalent word in Atchin is used with reverence for an "old man." This would suggest that at one time Muluwun Sumburan may have been the highest degree obtainable.

This possibility is supported from a number of sources. There was a time in Atchin, before the introduction of the monolith, when the corresponding degree of Mulōn was the highest available, and Mulōn is said by the natives of the Small Islands to be the title of the existing "chiefs" of the Big Nambas who inhabit the northern plateau of Malekula.

In further support of this, it is interesting to note the case mentioned on p. 152 of a man belonging to one of the neighbouring villages who spent his declining years in the effort to breed pigs enough to purchase the degree of Muluwun langawul.

or "Great Muluwun," from a village in the interior, as if that were the highest degree there obtainable.

In Atchin we have historical records of the introduction of the degree of Mal, bringing with it the use of the monolith and taking a position superior to that of the already established degree of Mulōn. We have seen that in the Menggi of South West Bay the monolith similarly first makes its appearance with the corresponding degree of Mbalias.

It would appear, then, highly probable that the degree of Muluwun was firmly established also in the vicinity of South West Bay before the introduction of Mbalias: that sufficient time had elapsed to allow of its being the basis from which additional degrees could be derived: and that, owing to the general tendency towards the multiplication of degrees, these were not discarded, but retained in the midst of a new set of Mbalias degrees which were either introduced together or filtered in one by one from a neighbouring source of cultural expansion.

The Position of Tar-lenunggor.

It is now possible to hazard a further suggestion regarding the position of Tar-lenunggor. It was pointed out at an early stage in this discussion that Tar-lenunggor, coming at the end of what we have labelled the indigenous series of degrees, occupied, in respect of its stone circle, a position analogous to the stone-using degrees (*i.e.* Nimweil or Muluwun) which follow after the parallel introduced series ending in Mew-langawul (Feather Cone).

Why, then, was this introduced series placed (in the main) *after*, and not before, Tar-lenunggor, which by its possession of a stone circle clearly marked it out as being a superior degree?

We have shown reason to suppose that Muluwun was firmly established in the neighbourhood before the introduction of Mbalias. We have also shown that Tar-lenunggor was established at South West Bay before the introduction of the Feather-Cone series, which probably came from somewhere in the neighbourhood of Tolman Island.

Supposing Tar-lenunggor to have been a precursor of the stone-using group, and that Nimweil and Muluwun (and later Mbalias) were introduced at a later date along with the Feather-Cone series: then the latter would shine with a reflected glory, and it can well be seen how Tar-lenunggor, branded with the stigma of an indigenous degree, would, in spite of its stone circle, be relegated to an inferior position.

I put this forward only as a suggestion, but with the knowledge that such an attitude of mind would be by no means foreign to the Malekulan.

3.—Suggested Mechanism.

It is now possible to discuss the apparent anomaly in the conclusions so far arrived at in this chapter.

Breakdown of an Exclusive Organization.

The conception of the degrees reached in the earlier part of the discussion is that they are largely, if not wholly, in the nature of preparatory rites leading up to the central monolithic degree of Mbalias. And yet it has just been postulated that Mbalias is a late arrival, capping the already established degree of Muluwun, and that Tar-lenunggor may belong to a still earlier local stratum.

It is of interest here to note that "civilization," according to tradition on Atchin, began with the slaying, by two brothers, called Malmalmari and Malmaloba, of the man-eating ogre Ias, and the introduction by Iwas, their sister's son, of the earliest form of the Maki (Menggi).¹ The reduplicated *Mol* in the names of the two brothers is sufficiently clear evidence that they were representatives of this highest rank (which corresponds to Mbalias) of the organization. But, in the Maki introduced by their nephew Iwas, the highest rank was not Mal, but Mulōn. It is, therefore, not unreasonable to suppose that, at the time of the introduction of the Maki, Mal was a title held only by very few, possible only by the leaders of an immigrant expedition, and that the inferior rank of Mulōn (Muluwun), though itself "preparatory" to Mal, would in many cases be the highest represented among the immigrants into any particular locality.

We may suppose that, following on the fusion of the immigrants with the indigenous population after the lapse of generations, the inevitable corruption would set in.

In the comparatively few centres in which a Mal had established himself, this degree, with the decay of the institution, would become more easy to obtain. What might have been originally a hereditary degree would, as soon as the hereditary distinctions broke down and its ranks became open to the claims of wealth, acquire a commercial importance which would assure its spread by the methods of purchase now so marked in Malekula and Ambrim.

We should then have a state of affairs similar to that which we have found to have occurred in South West Bay, in which the inferior degrees would be the first to make their appearance, to be followed only later by the degree from which all the rest were derived.

I have already mentioned² the existence of such a centre of culture for the Small Islands area.

It is an historical fact that the whole of the existing Maki ceremonial on Atchin, now concerned solely with the degree of Mal, to the exclusion of all the lower degrees formerly performed, has been derived by purchase from this centre, and the hypothesis advanced is the only one I know which would explain this and

¹ There is no space here to discuss the interesting question as to how far the pig-killing rites of the Maki are a substitution for an earlier practice of human sacrifice.

² See p. 144.

other movements of culture which have occurred in the Small Islands during the past few generations.

In South West Bay it is probable that we have to deal with at least two main centres of diffusion. The connection, on the one hand, with Tolman Island is clear, and will become clearer still in the following chapter.¹

On the other hand, it has already been seen that the stained plaited tillets used for tying on the spider's-web head-coverings in the stone-using degrees are obtained from the women of Lumbumbu. The leaves from which the grouting for the stain is extracted form the chief object of the trade conducted between Lumbumbu, across the neck of Malekula and up the east coast, with the island of Wala, which lies nearest to the now extinct centre of the Small Island culture, and is its most immediate heir.

The arrangement of the monoliths seen at Lumbumbu, as well as the names of the degrees there, show a close resemblance with those of the Small Islands. There is thus a considerable case for the comparatively recent derivation of at least the stone-using degrees of the South West Bay Menggi from this north-eastern centre. And the fact that the lower degrees have not been overwhelmed by Mal, as at Atchin, but have rather increased in number, may well be due to the greater distance from the centre of distribution.

Relation between Dolmen and Stone Circle.

It is significant that when Mulōn was the dominant degree on Atchin the prominent object was a dolmen surrounded by various shrubs. With the introduction of Mal, the shrubs disappeared, but the dolmen was retained, and the dolmen and monolith are now to be found together.

In South West Bay the stone circle is associated with Muluwun, and, like the dolmen in Atchin, is retained in conjunction with the monolith when this makes its appearance with the degree of Mbalias.

So that it would appear that dolmen and stone circle are variants of the same theme.²

Stone Image, Plain Monolith and Wooden Image.

With this evidence in view, and having traced in so many cases the principle of "trial" or anticipatory objects leading up throughout the grades to an already envisaged fulfilment in the higher degrees, it is worth while testing it on the most central objects of all.

¹ See p. 214.

² What is apparently an intermediate stage is described by Rivers in an unpublished note on the cognate *Sumba* organization of West Malo, where he records "circular arrangements . . . formed by setting low stones upright in the ground with other stones lying horizontally within or upon them." These arrangements are called *vota*, which corresponds to the Atchin *na-pot*, meaning a dolmen, in contrast to the word *ai-wet*, used for a monolith.

It has been seen that the earlier degrees centre round the erection of wooden images of increasing size and importance, that with Mbalias they give way to plain monoliths, and in the higher Mbalias degrees to a stone image.

The familiar question arises: Is the plain monolith a development of the wooden image and the stone image a development of the plain monolith, or has an alternative process been at work?

It is difficult to see why a wooden image should give rise to a plain monolith, and though it might at first sight appear natural that the stone image might arise out of a desire to embellish the monolith, this would imply a much greater departure from tradition than we have hitherto met with.

The Small Islands supply us with a clue to a different explanation.

In these islands (I speak particularly for Atchin) there are no carved monoliths, but every plain monolith has a wooden image immediately in front of it. Behind the monolith is a dolmen, and over the whole is erected a temporary house.

It has been shown that the dolmen and stone circle are variants of the same theme.

The Atchin arrangement thus corresponds exactly with that of the highest South West Bay degrees, the only difference being that where in South West Bay the image is carved on the stone, on Atchin the carving is transferred to the wooden image placed immediately in front of it.

Given a loss of the art of stone carving, this is a perfectly logical development.

We may suppose that a similar process has been at work in regard to the South West Bay degrees. The stone image, belonging only to the highest degrees, would be the prototype: in the less instructed degrees below it this would be split into plain monolith and wooden image: and as the meaning of either became forgotten, the monolith would be retained for the higher degrees, while the wooden image, divorced from the stone, would become the central object of the ever-multiplying lower grades.

The process is precisely similar to that already deduced in regard to the other preparatory series, and both wooden image and plain monolith may be regarded as "trial" or "anticipatory" objects, or "degradations"—the terms in this case are synonymous—of the stone image.

It may be objected that on the assumption that all the Mbalias degrees are variants on the same theme, the appearance of the stone image only in the later ones is evidence of local elaboration.

In view, however, of the evidence cited above of how a superior degree, for the very reason of its superiority, may be "left behind" and only introduced at a later date when its exclusiveness has become less rigid, it seems likely that the same process might well apply to an important feature of that degree. In other words, as new members were admitted they were only admitted to a degraded form of the rite. This degraded form would be transmitted, and it was not until full membership

was allowed and again transmitted that the original form, in this case, the monolith carved to represent the human form, would follow on the heels of the degradation.

Wooden Images and Tree-totemism.

In regard to the ceremonial planting of trees and the importance attached to the wood of which the images are made, we may again look to the Small Islands for a clue.

On the island of Wala is a village called Mel-nator, and it is said to have originated in the marriage of a Wala man with a woman from the mainland village of Tsinlorshits. When this woman came to Wala, a seed of the *va-tor* tree came with her, for it was her ancestor, and grew there. And one of her sons used the wood of it to make fire with, and he died. So now all the people of that village will not make fire with the wood of that tree, for they are descended from it and are afraid.

Isolated cases of totemism of this kind, running in particular families, are not uncommon in the Small Islands. This case has been cited because *va-tor* is the very tree from which is made the carved pole supporting the Feather Cone which has played such a prominent part in our discussion.

In Ambrim¹ the ghosts of dead ancestors are said to inhabit the images erected during the Mangge. In our account of the South West Bay degrees we have seen the importance of the wood from which the image is made. The nature of an object is very apt in Melanesia to be carried over to the material out of which that object is made, and if in this case the ancestor-nature of the image has been carried over to the living tree, we have at least a possible explanation for this particular type of tree-totemism.

The Doubling of the Rite.

There is yet one feature of the Menggi that calls for attention, and that is the remarkable *doubling* of the rite in the higher degrees. This has already been briefly referred to on p. 150. It makes its first appearance with No-ulas, and continues in all the higher degrees except Wet-ndum and Mbalmbal, where its omission may be due to faulty information, or else because these are simply preparatory degrees for Mew-langawul.

A further remarkable fact is that in the case of stone-using degrees from Nimweil upwards (I did not make enquiries about the earlier ones) it is apparently usual, though not essential, that this second part of the rite should be performed, and the image or monolith erected, in *another* village, not in that of the novice.

I received no explanation of this at the time, and since the fact was mentioned specifically only in the case of the higher degrees, it is possible that, men who have taken these degrees being comparatively rare, it is necessary for a prospective novice

¹ Rivers' unpublished MS.

to look outside his own village for one who will introduce him, and that the village in which the second part of the rite is performed is that of the introducer.

The fact that, even in the higher degrees, there are cases in which the second part appears to have been performed at home would be explained by the presence in the man's own village of one from whom he could buy: and in the early degrees this would naturally be the usual procedure.

This, however, is pure conjecture, and it is proper to mention here that in the lengthy and very complicated Maki of the Small Islands there is a similar repetition of the whole rite, though here the repetition invariably takes place in the home village.

It has been pointed out that there is now only one degree in these islands, and that the ceremonies connected with the dual rite are spread over a minimum period, in Atchin, of thirty years. For the purposes of the Maki the entire male population is divided into two groups, each group consisting of all the members of alternate generations. These two groups are responsible alternately for the performance of the complete double rite, and each member of the group must therefore "buy it" from his own "fathers" and "sons," who, under a system of local exogamy with patrilineal descent, all live in his own village.

It will be seen that the fact that here the second half of the rite is performed in the home village does not, owing to the necessity in the Small Islands of buying the rite from members of one's own village, exclude the explanation hazarded above in regard to South West Bay.

On the other hand, there is a current of duality running through the whole social organization of the Small Islands, and the whole matter may have a much deeper significance, which it is to be hoped that subsequent research may help to elucidate.

It is worth noting that in the Small Islands the more important of the two halves of the rite is the second, a feature that would seem to be shared by the degrees of the Menggi. Thus, in Mew-langawul, the Feather Cone is erected in the second part: in Nimweil the second of the two cycas trees to be planted is the larger: and in the higher Mbahas degrees the erection of the monolith always occurs in the second part.

V.

DEATH.

In spite of the meagreness of the following account, it will be seen that there is a close connection between funeral rites and the Menggi.

Death of a Small Child.

When a young child dies it is wrapped up in a long mat (*namban*), stiffened with bamboo rods, and buried in an upright position in a hole dug in the back part of

its parent's house. When the grave is covered in a small pig is killed by the father, and this and dry coco-nuts and yams are given to visitors from another village. This is not the mother's village, and will be referred to in the following account of the death of an adult. The mother's brother takes no part in the proceedings. The mother paints her face with white ashes.

The parents continue to live in the house, and when the body has decomposed (according to my informant, "when it has finished smelling") it is taken up and thrown away in the bush without ceremony.

Death of a Man who has Taken the Degree of Andal or Upwards.

The following description began with the above term of reference, but it is evident that as it proceeds my informant has more and more in mind the case of a man of high degree.

As soon as the man is dead gongs are beaten with the signal appropriate to his rank.

The body is carried to a spot immediately behind the club-house, called *embran amel*, so that the women shall not see it. It is washed with coco-nut oil and painted red—or, if the dead man was of the degree of Muluwun or Mbalias, white—all over. A stretcher (*ni wiri-at*) is made out of a frame of two bamboo poles and transverse bamboos tied together with coco-nut sinnet, covered with coco-nut leaves and overlaid with mats (*namban*). Pig's-tusk bracelets are placed on each wrist, hawks' feathers in the hair, and the body, adorned with all the insignia proper to the rank of the dead man, is placed on the stretcher. Two of the hollow wooden cylinders (*temes*) closed at one end (Pl. XVII, Fig. 4), which are kept in the club-house, are brought out, each carried by one man, while other men bring young coco-nuts, halved and with the milk in them. Then the men who have brought out the wooden cylinders blow into them, producing a loud booming noise, and the men with the coco-nuts blow into them (with reeds?), making a piping sound. These noises are supposed to represent the spirit of the dead man talking. Those present are not frightened, but women and those who do not know how they are produced are awe-struck.

The body is then covered with mats.

The people then assemble in the dancing-ground and place there the usual bunch of yams with a coco-nut attached on either side, tied together over the yams by a portion of loose fibre, and kill a pig and put it on top of the yam.

These are given to visitors from another village. The village chosen to receive this pig (and other subsequent pigs, yams, etc.) is always one with which the village of the dead man is not on good terms, or else is a long way off. A friendly or closely related village cannot perform this function. I could obtain no explanation of this.

The stretcher bearing the body is carried into the dead man's house and placed on four stakes erected for the purpose. Beneath the stretcher a hole is dug to

catch the juices of the decaying body. By the side of this a fire is lit, and for ten days, if the man was married, his wife sits on the further side of the fire, weeping and tending it, the children, if there are any, continuing to sleep in the house.

On the third day people assemble from the surrounding villages, bringing yams and other food. Two pigs are killed by the dead man's son or father or brother, and these, with live pigs and yams, are distributed among the visitors. A further pig is killed and given to the people of the hostile or distant village mentioned above.

Meanwhile the blowing on the wooden cylinders and the piping on the coco-nuts are continued for a length of time varying from ten days to a year, depending on the rank and importance of the dead man, the period being decreed by the old men.

The fire which is lit by the side of the body and tended by the wife is called *Na-amp nimbru*, which means "bad fire." On about the tenth day, when the body is dry,¹ a fowl is put on the fire, and it is allowed to go out. No one may eat this fowl.

The old men appoint a day (! the same as when the fire is put out), when the head is taken off from the body. The body remains on the stretcher and the head is placed in a basket called *no-on tmbatu temes* (dead man's head), which is hung up in the house. The wife's brothers bring a pig, with which they pay back the dead man's people for the pig which they killed at his death. Then they take back the wife to her own village.

Meanwhile an artificial body is being made out of wood, tied together with coco-nut sinnet and covered with the inner bark of the thatching-palm, turned inside out to resemble human flesh. A stick is left projecting from between the shoulders for the attachment of the head. A face is modelled on the skull as like the dead man as possible, and the juice of bread-fruit is rubbed into the hair in order to make it adhere to the cranium. Body and head are covered with a compot made of *Nembut* root. All this is done inside the club-house, and is called *natatilew*. Women are, of course, not allowed to see.

On about the fifth day the head is placed on the artificial body.

This *ni timis rembei* ("whole body of the dead man") is now carried out of the club-house to the place called *meten bal* (road's-eye), where the bush-path enters the village. If a big pig is going to be killed for the dead man, a man from another village of the same rank as the deceased is invited to eat it. He is called *i-a-an murisien*. All the people of the village go out to the road's-eye, and the man who has been specially invited hoists the "body" on to his shoulder and walks with it into the village, all, including the women, gazing at it and crying.

Arrived in the village, the body is put down in front of the club-house. Yams and coco-nuts are placed on the ground in the manner already described. The man (presumably father, brother, or son of the dead man) who is providing the pig to

¹ Since the bones are subsequently thrown away, it would appear that the fire in this case has the effect, not of drying the body, but probably of hastening the period of decomposition.

be killed takes a wooden pig-killer and hands it to the member of his village whom he had previously sent to look for someone who would carry the body and eat the pig. This messenger is then approached by the man in question, who takes the pig-killer and ceremonially kills the pig. Gongs are beaten with the rhythm called *caravai o'oi*, usually associated with "circling," but there is no dance. Yams are distributed, and the man who has carried the body takes the pig home to his own village, where it is eaten.

The body is taken into the club-house and attached to one of the centre-posts, where it remains. When it rots, it is thrown away, and the head is attached to one of the beams in the roof.

Meanwhile the real body has been left lying on the stretcher in the dead man's house. Here it remains till the feast of the new yams. This is called *we-eruv*, and was described by my interpreter as the "native Christmas." This feast is observed simultaneously by all the villages of the district. It lasts for three days, and when the day of actual feasting arrives the bones of all those who have died during the year are thrown away in a place called *Nembrumbr kon*,¹ translated by my informant as "bad place." A pig is killed, and this is called *ia-an mwisien*.²

The Three Races and the Home of the Dead.

On enquiring, in connection with the funeral rites, where a man went to after death, my informant and interpreter entered into a lively discussion between themselves. Then my interpreter turned to me and said, "I had better tell you this first," and launched into the following:—

"The same people have not always been on this island. First of all, there were people, and they multiplied, and their children grew more and more numerous till the island was full of people. Then they began to die out, and they died, and died, and died, till they were very nearly all dead. Then they began to multiply, and their children increased and increased till the island was full of people again. Then these people very nearly died out, and then increased again. And this happened three times, and there were three peoples."³

¹ The words *nembrumbr kon* are also used for the places in which the fragments of pottery used in connection with pig-magic are kept. My informant says, however, that the places are not the same. *Kon* is the general Malekulan, as opposed to the local, word for "taboo" or "holy."

² My note says "*ia-an mwisien* as before," and this is the name given to the man of another village who carried the corpse from the road-side to the club-house, and eats the pig that was killed on that occasion. Presumably, the same man figures in the present ceremony, and is again responsible for killing the pig and eating it.

³ The present enormous decrease in the population is the third of such periods, and the natives are discussing among themselves whether, as before, the population will start increasing again, or whether they will die out altogether. Some say that one day the white men will come in great numbers and create a fourth prosperous period with a white population. A possible reference to one of these periods of depopulation and repopulation occurs in the story of the origin of the Menggi on p. 175.

With this introduction, my informant proceeded directly to say that there were also three homes of the dead.

"There is one," he said, "called *Embru*, or *Wies*. All men who die go to this place. The men who stay there are bad. They are not men, but ghosts (*temes*). They are bad, 'like the French,' and spoil the living.

"There are two other places to which the dead may go. All men who have a sister walk by way of a place called Lamanggau¹ and through a hole in the rock, called Bong eru (two holes), and go to the bamboo-grove called *Lembwil*, where they stay.

"If a man has no sister he goes along the shore to a sugar-loaf hill called *Ma-a*, on the coast towards Tolman Island.

"All these places are bad, and the men who go there are bad and unhappy, and do evil to the living."

It was not until I said, "If the men who go to Wies are all bad, where do the 'good' go to?" that he told me that "the good go to Lenamap (the sky), up to the clouds (*nimelunk*). Here there is no more work, and all are good and happy, but it is not known what they do or eat. They are also called *temes*, but they are not bad."

On enquiring about women, I was told that "those who have a brother go to Lembwil; those who have no brother go to Ma-a."

On being pressed with the question, "Who, then, go to Embru?" my informant said he did not know. Nor did he know whether any women went to Embru or Lenamap.

I have given the above exactly as it was given to me by Tom, the school-teacher, interpreting for Tivlus, the heathen.

There seems little doubt, as he prefaced his whole account with the information respecting the three races who had inhabited the island, and that he only produced Lenamap, the home in the sky, on being pressed, that Embru (or Wies), Lembwil and Ma-a are the important places, and correspond in some way to these three races.

It is possible that the conception of a home in the sky might be owing to Christian influence, but there is a similar layer of belief in Atchin which quite ignores the more generally current belief in a journey to the volcano of Ambrim, and is particularly held by a family tracing its origin in the island of Maewo (Aurora), which is looked on as the land of Tahar (Tagaro), who is identified with the sun and moon.

It is, however, evident that, in giving me the account of the three races that had inhabited the island, my informant was in some way explaining beforehand the existence of three homes of the dead.

¹ Lamanggau is now occupied by the trading station of Frenchman, M. Javeher. Bong eru is close to the station of the Canahau, Mr. McAfie. Lembwil is close to the Mission Station.

Leaving out, then, the question of the home in the sky, we have, firstly, the conception that *all* the dead spend a large part of their time in harassing those whom they have left behind.

The account of the three homes of the dead is ambiguous in one respect. It is said that *all* men who die go to Embru, then that all those with sisters go to Lembwil, and those without to Ma-a. A possible interpretation of this would be that all go to Embru, and then diverge to Lembwil or Ma-a.

In regard to the remarkable statement that men who have a sister and women who have a brother go to one place, while men without a sister and women without a brother go to another, I must confess that at the time of collecting this information I was completely puzzled. It was only later that I was struck with a possible connection with incestuous unions: and for lack of further enquiries in this direction the passage must stand as it is.

Pottery. (Pl. XVIII, Fig. 3; Pl. XIX, Fig. 1; and Text-figs. 2-9.)

There exist in this part of Malekula a number of remarkable objects of rough earthenware. They are called *ne-net*, which means "stone."

No pottery of any kind is made by the present inhabitants of Malekula, and my informant made the remarkable statement that they think that these objects were not made by black men (*ni mor metemet*) at all, but by a race of white-skinned people called *Ambat*, who at one time sojourned in the island, and concerning whom he imparted information set out below.

These objects were kept in certain places called *Nembrumbr kon*, and jealously guarded by sorcerers called *umbatu wor*. It is said that these men are now all dead, but that placing certain leaves in the pots, they performed rites for the purpose of procuring the increase of pigs.

Specimens, now in Cambridge, are figured in Pl. XVIII, Fig. 3.

The pottery is of two kinds, jars and hollow cylinders. All are of rough coiled earthenware, averaging $\frac{3}{4}$ -in. to 1-in. thick. The largest of the jars is 1 ft. 5 in. long and 7 in. wide, while the only perfect cylinder obtained is 1 ft. 3 in. long by 7 in. wide. All, with the single exception of jar 1919.5.241 (Pl. XVIII, Fig. 3),¹ are decorated with incised lines and points or dashes applied before baking. Rough tracings of the designs can be seen in the accompanying line-drawings. (Text-figs. 2-9, pp. 212, 213.)

The jars have in all cases a pointed base from which the jar splays out at varying angles and then continues upwards with roughly parallel sides, in some cases slightly widening, in others slightly contracting towards a lipless rim. The only exception to this description is the single undecorated jar 1919.5.241, which is much wider than the others in proportion to its height, and has a distinctly lip-like rim.

¹ The numbers are those of the Cambridge Museum Catalogue.

With the exception, on jar 1916.126.268A (Text-fig. 9), of a single small human figure with flexed limbs, all the designs may be roughly classed as geometric: and there seems to be no generic distinction between the designs on jars and cylinders. There are some undoubted representations of leaves, particularly on jar 1916.126.268B (Text-fig. 8), but these also appear to be geometrically arranged.

The most geometrical design is seen on jar 1916.126.255 (Text-fig. 4), and consists of lines of contiguous triangles, alternately plain and filled with dashes. This design also occurs on jar 1919.5.243 (Text-fig. 7), next to the design consisting of three lots of concentric squares.

On cylinder 1919.5.244 (Text-fig. 6), we have another geometric design consisting of consecutive diamonds with sides projecting to enclose a triangle. This design is remarkably suggestive of the large hawk banners, fitted at the apex of the diamond with a frigate-bird canoe-prow-head, which are displayed during the degree-taking ceremonies in the Small Islands, where the novice himself also impersonates the hawk. The feathering in the centre may conceivably represent one of the feather ornaments associated with degree-taking. This is the only example of the enclosed space of the design being filled with dots instead of dashes.

Cylinder 1919.5.245 (Text-fig. 5) shows a combination of the consecutive-triangle design with a new theme consisting of two triangles, one above the other, the base of the lower bisecting the base of the uppermost, which is formed of two crescents ending in a leaf-like projection.

Consecutive triangles are again seen in couples and in baseless triplets in jar 1920.1014 (Text-fig. 2), and between the two series are three columns of figures each consisting of two lots of three lines converging on a common centre. To the right of the triple triangles is a formless design of lines and dashes, flanked by a band consisting of horizontal lines of closely incised chevrons, beyond which are five large vertically placed chevrons, each hatched on its outer surface.

Jar 1919.5.242 (Pl. XVIII, Fig. 3) shows on the left a series of broad curved bands, possibly representing leaves, merging into a formless mass of dashes, beyond which are designs that, on the analogy of other jars since procured from the same locality, would appear to represent leaves. Beyond a further mass of lines and dashes is a series of triangles.

On the fragment of a jar 1916.126.268B (Text-fig. 8) is a design clearly representing leaves, apparently arranged in a geometric manner. The presence of leaf designs on the pottery is interesting, on account of its possible connection either with the leaves placed in the jars for magical purposes, or with the numerous leaves and shrubs used in connection with the degree-taking ceremony and as taboo signs.

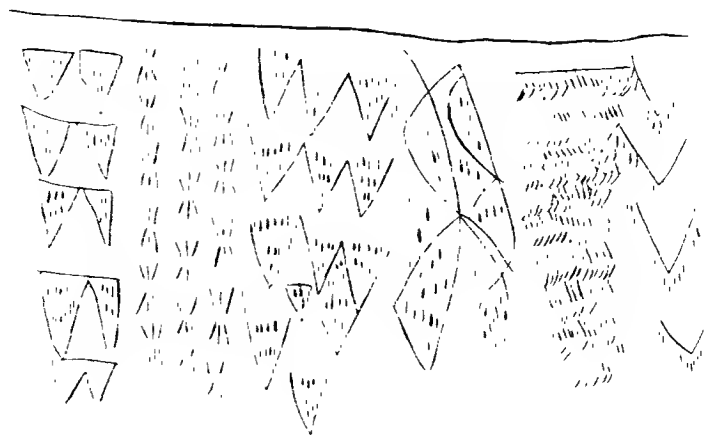


FIG. 2.—(1920.1014.)

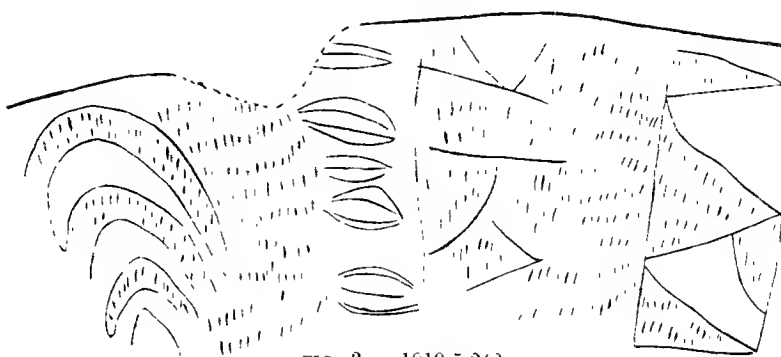


FIG. 3.—(1919.5.242.)

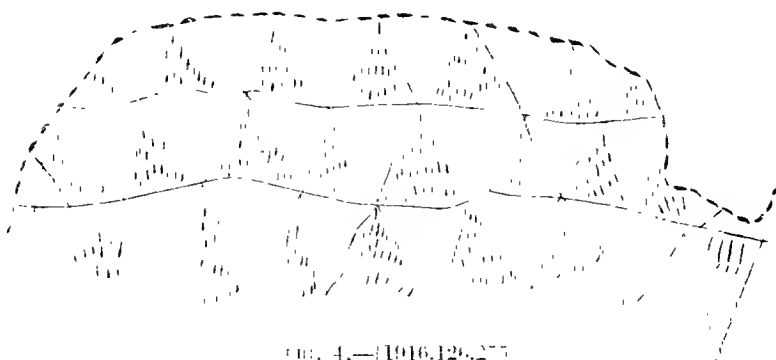


FIG. 4.—(1916.126.277.)

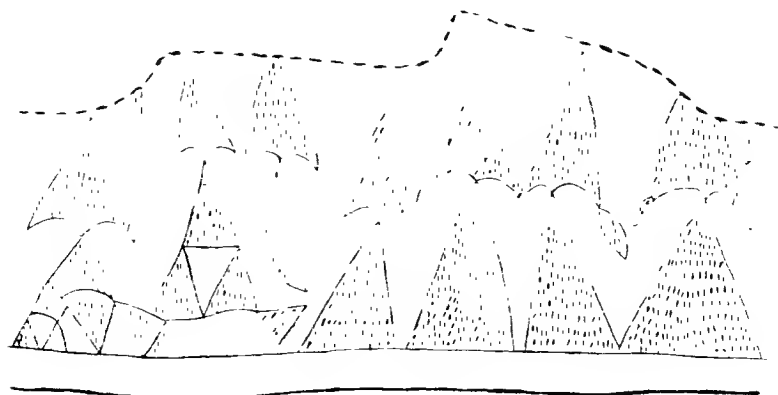


FIG. 5.—(1919.5.245.)

ENGRAVED DESIGNS ON POTTERY: FIGS. 2, 3 AND 4, ON JARS; FIG. 5, ON OPEN CYLINDER. $\times \frac{1}{6}$.
(CAMBRIDGE MUSEUM CATALOGUE NUMBERS IN BRACKETS.)

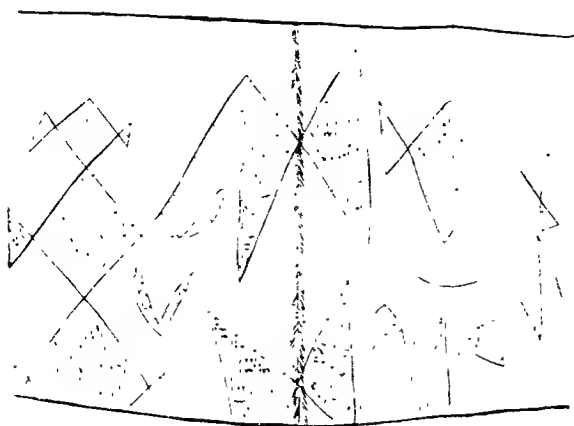


FIG. 6.—(1919.5.244.)

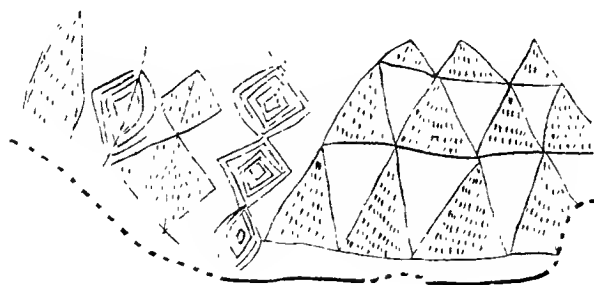


FIG. 7.—(1919.5.243.)



FIG. 8.—(1916.126.268b)



FIG. 9.—(1916.126.268a.)

ENGRAVED DESIGNS ON POTTERY: FIG. 6, ON CYLINDER: FIGS. 7, 8 AND 9, ON JARS.

(FIGS. 6 AND 7 $\times \frac{1}{2}$ FIG. 8 $\times \frac{1}{3}$ FIG. 9 $\times \frac{1}{3}$.)

(CAMBRIDGE MUSEUM CATALOGUE NUMBERS IN BRACKETS.)

The Ambat.

Enquiry into the origin of the above-mentioned pottery led directly to the information set out below. When I asked "Who made them?" the reply was, "We don't know for certain, but suppose it must have been the Ambat."

This led to a number of stories concerning a race of men called Ambat, who are said to have lived a long time ago in that part of Malekula. These Ambat are said to have been white, like the present white men, and when Europeans first arrived on the island they were believed to belong to the same race, and were therefore called Ambat. The name has stuck, and at the present day Ambat is the word for "white man."

My informant has seen Tongans and Samoans, but affirms that the original Ambat were not like these, but were white men like ourselves. In fact, all through the stories about them, he kept on looking at me and saying, "And they were all Ambat, just like you."

That they are in no way connected with recent European settlers is, however, evident from the stories themselves.

The Stories.

The Making of Tolman Island.—There is an island called Hambi, about half-way along the south coast of Malekula. Close to this is a small island called Lenu-ur. On a hill on the mainland opposite this is a place called Batenbrungk.

Here lived an Ambat. His food was *talai-rop*, the creature that inhabits the clam-shell. Every day, at sunrise and sunset, he climbed to the top of the hill and looked out to sea. He never looked out in the middle of the day, but if he got up in the night he looked there too. On these occasions he always looked out to sea. "He could not look any other way."

Once at night he saw, a long way out at sea, a huge clam-shell (*talai*) suddenly shut its valves, and a great spout of light "like a cloud" shot up into the sky. The following night he looked out to see if the same thing would happen, and it did; and the next night, and the next. And when he had seen the same thing for a number of nights, he took a stick of *nelangk* wood, and some string of a kind called *netel wilala*, and another kind of string called *netel miliskar*. First, he served the stick with *netel wilala*, winding it round the whole length of the stick: then he served it again with *netel miliskar*, so that the stick was completely covered with a double layer of string.

Now this Ambat was all alone and had no friends. And he wanted someone to send about his business. So he called to him an owl (*ni-wimbant*), and spoke to it and said, "Take this stick." The owl took the stick. And he said, "Take this stick and go out to sea and watch that big thing (the clam), and watch, and watch, and when it opens its mouth, put this stick into it so that it cannot shut." And the owl did so. And when he put the stick into its mouth, all the sea in that place dried up and left only dry land.

But the ground was not good: it was all stones. The Ambat saw this. And there was with him a woman who was black, and she had big ears, and her name was Win-bumba-au.¹ And he said to her, "I want this land for myself. You take plenty of good soil and empty it all over that ground to cover up all the stones." This woman worked hard and took plenty of good soil from the mainland. At last the Ambat said, "That is enough, now you have done all this for me and I see that the place is good, I will leave my place and go there." So he left her and went and lived there, and this place is Tolman Island.²

He took coco-nuts and *mbetep* and all trees that have good fruit and planted them on the island. Then he made a house for himself, a woman's living-house and a club-house. The place where he made his house is called Eim Oran. This place is taboo now, and no man may go there.

And he had an Ambat woman whose name was Lindanda. And he had four friends, all Ambat, whom he brought with him from Batenbrungk. These four slept in the club-house, and he and his wife slept together in her house. And these six Ambat are the ancestors of the people of Tolman Island.

Nowadays no man may go to Eim Oran. Every man who has been there has died. Their gongs and rotting club-house and the clam-shell and the stick are all still there. But no man living has seen them. The stick has grown into a tree and the two ropes are growing up it.

The Ambat of Lo-or-marit.—Another Ambat is said to have made the village of Lo-or-marit, far away in the bush. It is not known what work the Ambat did, but it is supposed that they made the pottery. It is said that these two men are the ancestors of all the men of Malekula, and the people of to-day put two and two together and think that they must between them have made the whole island of Malekula. They think that if these two had not existed there would have been no land here and no people.

The Forbidden Fruit.—There is another story concerning these Ambat which is so suggestive of the Biblical story of Adam and Eve as to make it impossible to exclude the possibility of Mission origin. My interpreter was a native school-teacher, and he affirmed that this was not the case. I give the story for what it is worth. The scene of the story is a place called Lenewen close to Lembenewen:—

There was a man and his wife, and they had a son and a daughter. The children grew up, and one day the parents went away and told the children to stop at home in the village. They stayed there, and one day there came to them, they knew not whence, a snake (*natnat*), in the form of a man. He was a "big feller master," an old man with white hair and beard, and he wore an arm-badger of the

¹ Win = woman. *Bumba-au* suggests some connection with the crab in the story of the origin of the Menggi on p. 175.

² See map.

kind called *binben tic times*¹ with a design representing a man's face, and on this arm was a pig's tusk called *sibsib malis*.

He spoke to the boy and girl, and said, "Hello, do you live here?" And there grew in that place a tree called *na-avri*, with a red edible fruit. He said, "Why don't you eat the fruit of this tree?" They replied, "Our father and mother told us not to eat this fruit." He said, "Your father and mother deceived you. The fruit of this tree is very sweet. You had better take some and eat it."

They thought of his words, and climbed up the tree and picked the fruit and ate it. The girl climbed up first and found the fruit was sweet and gave to her brother, and they ate together. And as they ate, the juice of the fruit ran out of the corners of their mouths and all over their bodies and made them black.

When father and mother came home they could not find the children. For they were afraid, because they were black, and went and hid in the bush. And the father called to them. And the boy and girl answered "*Ho?*" They did not say it loud, but only softly. And the father and mother said, "Come here," but they would not. And the parents went and looked for them. When they saw them they said, "Ah! *ts—ts—ts*, what made you like this?" And the children said, "To-day one big feller master came here and told us to eat of the fruit of that tree that you told us not to eat of." The parents saw that the children were black and were angry and said, "All right, you stay, you and your sister, you stay here, we will go away and leave you." The parents went back to the village and down to the beach, and launched a canoe and paddled straight out to sea. The children knew that their parents were angry, and ran down to the beach to stop them. But they were too late and saw them right out at sea. The parents paddled—they did not sail—right out to sea, and it is not known where they went to.

The boy and girl were very sorry and cried for them. And they too are the ancestors of all the people of Lenewen.

At first parents and children were all white. Their names are unknown, but the father was referred to throughout the story as *Ambat*. The snake-man was black.

Note.—The introduction of local colour, even to the extent of dressing up the devil to look like a native "chief," is not incompatible with the methods now, happily modified, of the early missionary. On the other hand, the story, though interpreted by a school-teacher, was related in all seriousness by an old heathen who knew enough of me to treat me seriously in other matters, and the insistence on details such as the fact that the parents paddled and did not sail away suggests something more than the plain Bible history.

Remarks on the Ambat.

There are several points of interest connected with these *Ambat*. *Amb* or *amp* is a widespread word for "fire," and is seen in the names of the first and third

¹ Literally translated, this means "badge of the holy ghost."



FIG. 2.—TWO IMAGES OF *Mbatana* (THREE-FERN), ONE OF *Andal*, AND SMALL ONE OF *Mochised*.



FIG. 4.—STONE STRUCTURE CALLED *Tancuachic*, POSSIBLY CONNECTED WITH DEGREE OF *Tar-leunggor*.



FIG. 1.—CLUB-HOUSE AT BVINEMBAR. NOTE THE LOWNESS OF THE DOOR, TO PREVENT OUTSIDERS FROM SEEING IN.



FIG. 3.—THREE IMAGES OF *TAR-LEUNGGOR*, IN FRONT OF TREE SURROUNDED BY STONE CIRCLE.



FIG. 1.—SMALL HOLLOW CONE USED IN THE DEGREE OF *Mbalmal*.



FIG. 2.—CLUB-HOUSE: IN FRONT IS A CARVED *tortor* POLE FROM WHICH IS SUSPENDED THE FEATHER CONE IN *Meo-langurul*.



FIG. 3.—INCISED PHALLIC STONE ERECTED FOR *Wet-ndum*, ABOUT 2 FT. HIGH.



FIG. 4.—CYCAS TREE (*Ni-mov il*), WITH STONE CIRCLE.



FIG. 1.—IMAGES FOR *Maduan* (?) WITH STONE CIRCLES.



FIG. 2.—IMAGE FOR *Maduan* *Sunbarun*. NOTE FORE-STONE WITH "STONE'S CHILD."



FIG. 3.—PLAIN MONOLITH ERECTED FOR *Mbadias* (*Namad-iron*). NOTE THE "STONE'S CHILDREN," ABOUT 4 FT. HIGH.



FIG. 4.—MONOLITHS FOR *Nu-asun* (NOTE "STONE'S CHILD") AND *Mbad-mupuramp*.



FIG. 1.—MONOLITH FOR *Nai-mel Nambu*, CARVED TO REPRESENT THE HUMAN FORM. STONE CIRCLE AND FORE-STONE WITH "STONE'S CHILD." ABOUT 4 FT. HIGH.



FIG. 2.—MONOLITH FOR *Nai-sun (?)* CARVED WITH THREE HUMAN FACES. ABOUT 4 FT. HIGH.



FIG. 3.—ONE MODELLED SKULL, AND PARTS OF TWO ARMS OF ARTIFICIAL BODIES ATTACHED TO CENTRE-POST OF A CLUB-HOUSE. (See p. 207.)



FIG. 4.—MUSICAL WOODEN CYLINDERS STACKED IN THE CLUB-HOUSE. THE FAR ENDS ARE CLOSED AND THE PERFORMERS BLOW INTO THEM THROUGH THE BAMBOOS, PRODUCING A HOLLOW SOUND SAID TO REPRESENT THE VOICE OF THE DEAD. (See p. 206.)



FIG. 1.—JAWS OF SACRIFICIAL BOARS.
(See p. 190.)

A.—CRESCENT-TUSKER. B.—CURVED-TUSKER.
C AND D.—RE-ENTRANT TUSKERS.

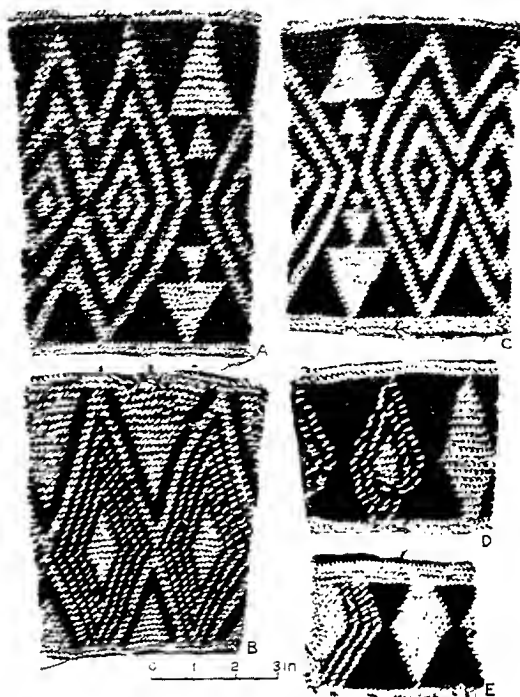


FIG. 2.—SHELL AND COCO-NUT BEAD ARM-BADGES.
(See p. 188.)

A AND C.—*Morlangaral*. B.—*Mulawun*.
D AND E.—WOMEN'S BADGES.



FIG. 3.—POTTERY SAID TO HAVE BEEN MANUFACTURED BY THE *Ambak*, AND NOW USED IN FERTILITY MAGIC FOR THE PURPOSE OF PROCURING INCREASE IN FIGS. (See p. 210, and Text-figs. 2-9.)
(The numbers are those of the Cambridge Museum Catalogue.)

DEGREE-TAKING RITES IN SOUTH WEST BAY, MALEKULA.



FIG. 1.—HOLLOW EARTHEN-
WARE CYLINDER. (See p. 211.)
(1919.5.244.)



FIG. 2.—WOODEN PIG-
KILLER (*na-ai-moh-mot*).

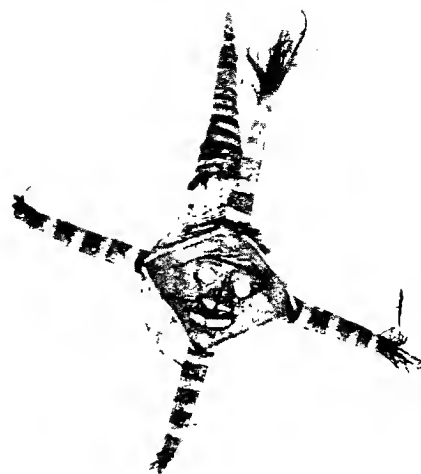


FIG. 3.—CONCH-SHELL TRUMPET WITH COM-
POSITION FACE ATTACHED. HELD IN THE
HAND BY *Men-bangual*. (See p. 168.)



FIG. 4.—MODELLED SKULL WITH SPIDER'S-WEB HEAD-COVERING
(*makambat*).

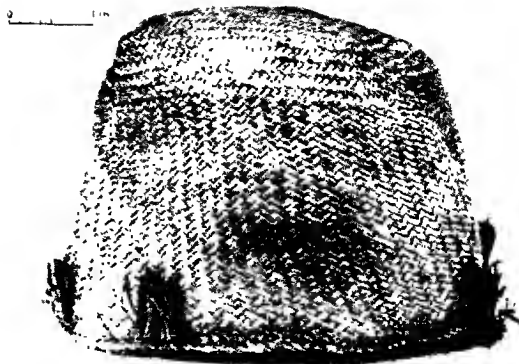


FIG. 5.—BABY'S CAP, WORN OVER THE HEAD-
DEFORMING APPARATUS. (See p. 220.)

degrees of the Menggi. I did not, however, put the direct question to my informant, so the derivation of Ambat from *amb* must be taken as hypothetical.

Ambat and the Home in the Sky.—The Ambat do not appear to be identified with either of the three races mentioned on p. 208, or with the three terrestrial homes of the dead with which these appear to be connected. It would seem, on the other hand, not at all unlikely that they are responsible for the contradictory and loosely held belief in an alternative home in the sky called Lenamap, a belief associated throughout Oceania with light-skinned immigrants.

Long-eared Race the Servants of the Ambat.—The story of the clam-shell and the creation of an island out of the sea is a familiar companion of the immigrants into Oceania, and the peculiar interest of the story here lies in the nature of the companion who, under the orders of the Ambat, did all the work necessary to making the island habitable. This is described as a woman called Win-bumba-au, who was black and had big ears.

People with distended ear-lobes are found in Indonesia and in many parts of Melanesia, and have left their mark in the long-eared statues of Easter Island.

Here they would appear as the servants of the Ambat, and definitely as an inferior race, though whether one which the Ambat brought with them or one which they found already on the island there is not sufficient evidence to show.

The Ambat and the Menggi.—There is no direct evidence¹ of any connection between the Ambat and the Menggi, but a hint may be contained in the special mention of the *mbetep*² tree, of which the images in the stone-using degrees are made, as being one of those planted by the Ambat on their new island. More significant than this, however, is the very record of such wholesale transplantation of useful and ceremonial trees. If trees for food and for ceremonial purposes were imported into Tolman Island, why should they not have been previously imported for the same reason into Malekula? And have we not here an indication as to the ceremonial planting of trees which plays such a prominent part in the Menggi,³

¹ But see Note 1, p. 215.

² On philological grounds, *mbetep* may well be bread fruit, but as I did not enquire into this, I cannot vouch for it.

³ In regard to trees of common use, there is definite evidence for the quite recent spread of the coco-nut from south to north up the east coast of Malekula. On the west side of the island, not far north of South West Bay, there is a stretch of about five or six miles of coast where, owing to the steepness of the cliff, there are no coastal villages, but inland population which until recently was very numerous and very wild. Here there are no coco-nuts, and it is one of the few spots where there is still sandal wood. The trader with whom I stayed at South West Bay had a theory that it was on account of the ferocity of the natives that the sandal-wood traders failed to penetrate, and he also put down the lack of coco-nuts to the same cause, intercourse with other natives being so rare that the coco-nut tree did not penetrate. Of course, it is possible that there may be lack of suitable soil or some other reason, but this is unlikely, as the coco-nut will grow almost anywhere in Malekula. It is, at any rate, interesting that a trader living in the neighbourhood, with no knowledge of the wider problems of ethnology, should have taken it for granted that the coco-nut was of such recent native-borne origin.

Before leaving the subject of the Ambat, I should like to call attention to yet another matter. Whatever opinion may be held as to my informant's account of the lightness of the Ambat's skin, there can be no doubt that he was of superior type to the existing inhabitants of the island.

The Ambat and Head Deformation.—I have recorded in the appendix (p. 219) the customs of elongating the babies' heads and of pressing the septum of the nose between two sticks so as to make it prominent. These practices are entirely absent from East and North-East Malekula, where there is no tradition regarding the Ambat, and where the preservation of effigies in the club-house is equally unknown. The evidence points very strongly to a connection of both these customs, as also of the making of pottery, with the Ambat. Whether the head and nose deformation were initiated by the indigenous population in order to emulate the physical superiority of the immigrants, or whether the practice was a part of the already formed culture which they introduced into South West Bay, is a question only to be decided by comparative study over a much larger field.

It is probable that subsequent research will have brought to light a mass of evidence regarding these Ambat which will enable us to solve some of the problems concerning them. It is evident, however, in regard to their appearance in South West Bay, that whatever the authenticity of the story regarding the reason for their departure, either that they did not remain long enough, or that they were not in sufficient numbers to modify to any appreciable extent the physical type of the natives.

Affinities with Polynesian Tradition.

There is a marked resemblance in detail between these white Ambat and the white race met with in Polynesian tradition. Mr. Percy Smith says¹: "There are also traditions amongst the Maoris of a race of 'gods' called Pakehakeha, who are said always to live on the sea, and are white in complexion—hence the name Pakeha they gave to the white man on first becoming acquainted with us in the eighteenth century. . . . It is said of the Patu-pai-arehe (one of the names given to these white people), from whom the Maoris learnt the art of making fishing-nets, that they worked at night, and disappeared as the sun rose. . . ."

The resemblance is more than striking. The Pakeha "always live on the sea"; the Ambat "always looked out to sea—he could not look any other way." The Pakeha "worked at night and disappeared as the sun rose"; the Ambat "looked out at night, but never by day." The conception of both was such that both names were applied to the European whites on their arrival in the respective islands.

Mr. Percy Smith continues: "But the Maori is not the only branch of the race that retains this tradition of contact with a white race, for Hawaiian history relates that Hawaii-loa, one of their great navigators, on one of his voyages apparently in

¹ *Hawaiki*, 4th ed., pp. 143 and 144.

Indonesia, brought back to his home two white men, *poe keokeo kane*, who were married to his people. According to Fornander's genealogy, this man appears to have flourished about A.D. 300, or whilst some of the Polynesians were probably on the move, either eastwards through Indonesia or southwards towards Fiji."

Since the New Hebrides lie on the direct track known to have been followed by the Polynesians on their way to Fiji, the resemblance between the Melanesian and Polynesian accounts of this white race is at least suggestive.

He continues: "The Mangaian people, according to Dr. Wyatt Gill, call the *keu*, or light-coloured people, *Te anau keu a Tangaroa* (the light-coloured offspring of Tangaroa)." I have no mention here of any connection of the Ambat with this god or culture-hero, but he is well known in the Small Islands under the name of Tahar, and in the Banks Islands as Tagaro.

CONCLUSION.

This brings me to an end of the account obtained during my very brief visit to South West Bay. It was on account of the extraordinary suggestiveness of this material that I recommended Mr. Deacon to go to this particular part of Malekula, and it was there, to the grief of all who knew him, that he lost his life. Mr. Deacon was a field-worker of the very highest order, whose loss is not to be put into words.

It is probable that, apart from the correction of inevitable mistakes, many of the conclusions come to above will have to be modified as a result of his work, and it is certain that the intensive nature of his study will add enormously to our understanding of the many problems involved.

Note.—Since the writing of this account, Dr. Hacklon has given to the Anthropological Institute a preliminary report of Mr. Deacon's work. This so far eclipses even the high hopes formed of it that it will probably go down to history as one of the corner-stones of ethnological research.

APPENDIX.

BIRTH AND NOSE DEFORMATION.

No gongs are beaten at birth.

One of the women who attend the mother cuts the umbilical cord. The child is then washed, and subsequently swung from side to side over a fire, after which it is given back to the mother. While it is being washed the child is named without formality by all the men present, who discuss the name until one is approved by all. After it has been washed, but before it is swung over the fire, the mother's brother, if there—or, lacking him, the child's father—takes two small sticks, about 4 inches long, of any wood available, and inserts one of them into each of the child's nostrils. With these he presses against the septum of the nose, in order to make it "straight" instead of flat.¹

When, after about three days, the child's umbilical cord drops off, the mother breaks off a red croton leaf (*ma-ai timbu*) and blesses the place with the juice which exudes from the stalk. She places the withered cord in a piece of arid cane (*mau*) which she inserts into the thatch of her house, where it becomes one of the first to rot, and remains till the house rots.

¹ See p. 218.

On the twentieth day after birth, the child's father gives medicine to the mother. He squeezes the juice of sugar-cane and of a leaf called *nimbini* into the water of a young coco-nut, which the mother drinks to make her strong.

Up to this time she has remained in the house except when necessary, fearing to catch cold. Now the mother's brother and mother's father come, and the child's father gives a pig to each. When they have gone away the father, and the mother carrying the child, take a bow and arrow (*mouar* and *nibumbwele*) and place them one in each of the roads approaching the village, and cover them with white ashes. This is a sign to all comers that a boy has been born and paid for. In the case of a girl, a basket (*seemok-wbatil-mbat*) is placed in the path, also covered with white ashes.

HEAD DEFORMATION.

At some period during infancy, my notes do not say when, the child's head is confined within a narrow cap in order to lengthen it.

Four fruits of the *mo-mo molo* are placed in the fire till the shell drops off and the kernel is burnt black. Then they are taken out of the fire and cooled for about a couple of hours, after which they are rolled in the hand so that they break. The hand is then scraped with a shell called *mo-ta-pilong*, so that the black juice of the fruit collects in the hollow of the shell. The mother sits on the ground with legs stretched out in front of her and one foot resting on the other, and the baby is laid on her lap with its legs towards her. She dips her right forefinger in the juice which is in the shell, and puts the shell down by her side. Lifting up the child's head with her left hand, she smears the juice all over it, so that it is quite black. She then binds it with the white fibrous part of the midrib of a banana leaf, and secures this with string called *uhoiric*. This is then covered with a plaited cap called *mo-on t-tap*¹ (Pl. XIX, Fig. 5). This is done twice daily till the child begins to go out of the house, and then once a day until it begins to talk and walk. Then it is taken off.

When the child is five or six years old the father calls the mother's brother and the mother's father of the child, and pays a pig to each for the wooden bracer (*tilewar*) which is made by the mother's father, who places it on the child's left wrist.

This appears to be the child's first step in ceremonial life, as my informant proceeded straight away with the account of the child's taking the degree of Ambkon. (See p. 155.)

INITIATION.

Girls.

Knocking out Teeth (Nitatian).—If an unmarried man wants to marry a girl, he sends a message by one of his friends to the girl's father. If the father consents, and says that he would like to be friends and let his girl marry the man, he sends back word to the following effect: "All right, you tell that young man to work and get the pigs to buy the girl. Meanwhile, I will keep the girl for a little time in order to have her teeth knocked out."

A day is fixed for knocking out the girl's teeth, and the girl's mother's brother is sent for. On the day before the operation, all the people assemble and go to a special lodge in the bush, called *mo-neural*. There a ceremony called *bat-le* is enacted, which consists in the mother's brother presenting a big pig to the girl, who hands it on to her father.²

Then the girl and all the women who are attending her go and bathe (*ro habahub*) in the sea or river.

When they return, yams brought by the visitors are distributed. The majority of the visitors depart, but some of the women remain to dance all night, while the men sit down and sing.

¹ See Speiser, *Newen Hebriden*, pl. 48, fig. 6; also Martin Johnson, *Cannibal Land*, pl. facing p. 142 and text p. 141.

² It is said that *mo-tuan i bat-le*, "*mo-tuan*" being the mother's brother, and "*bat-le*" a certain kind of exchange present common throughout Malekula.

This dance is called *nboboien*. The girl does not dance, but is taken into the lodge. A special pudding is now made, a yam called *ripta-atap* is ground into a *noroua* leaf, a coco-nut is scraped, and the flower of a bush called *utal* is torn into small pieces and mixed with the coco-nut scrapings. These are now squeezed over the yam, which is then wrapped up and put into the fire. The purpose of this pudding is to cause the girl's teeth to come out easily. The girl eats it in the evening before going to sleep, and the dance is continued all night round the house. At daybreak yams are distributed quickly among the dancers.

The operation is called *nirua balamint*.¹ It is performed by anyone, man or woman, who has a reputation for doing it well. A short stick is placed horizontally in the girl's mouth. The mother's brother's wife sits behind the girl clasping her to her chest. The operator knocks out the two middle upper incisors (*ailatu*) by placing against them a piece of wood (*rimam wengh*) and hitting this with a small stone (*inwet-utut*). Owing to the magic of the pudding, the teeth are so loose that they come out after two or three knocks. The patient warms her fingers over a fire and puts them into the holes to stop the blood, which, again owing to the pudding, is not excessive.

The father then gives four live pigs to the girl's mother's brother in return for the pig given by him to the girl on the previous day. This is called "*ri seusep baran metuan*," and large tuskers are expected.

A fifth pig is given to another of the mother's brothers, the elder getting the four pigs and the younger the fifth. This last is given outright (*re sepat*), and no return is expected.²

The girl remains in the house for four or five days. On the morning of the day when she comes out, a feast is made for the girl and her relatives. Small boys go through the bush shooting at trees with their bows and arrows, and little girls take wild canes and throw them at the trees after the boys have shot at them. In the evening³ the girl is washed and her body anointed with coco-nut oil and she is painted and made "flash." Puddings have been made in the morning, and these are now eaten by those present.

Boys.

Incision (meh-hah-haban).—Candidates are called *Ni-morot re-hah-hah*, and several may be put through the rite together.

Proceedings open as for the knocking out of a girl's teeth. The boy's mother's brother is sent for and a day is appointed for the operation. The day before the operation a fence (*nggor-nggor*) is constructed round the front of the club-house and the gongs are beaten in the rhythm called "*ruvavi v'oi*." That night bamboos (*ua-ai mbalmbal*) are erected between the women's houses and the dancing-ground, and the men sing all night, standing by these bamboos and beating them (*va tambr*).

Next morning the patients are taken to the sea or river, and are operated on, apparently by any man with sufficient skill, a small bone being inserted under the foreskin, and the operator cutting down on to this with a bamboo knife.

As soon as a boy has been incised he gets up and stamps on a yam which has been placed ready by his side, breaking it to pieces. (I was unable to find out the meaning of this.) The wound is washed repeatedly until it stops bleeding, and then tied up in a *noroua* leaf, which is the leaf ordinarily worn beneath the penis-wrapper.

All now return to the village, and the mother's brother gives a pig to the father (not handing it first to the patient, as in the case of a girl). This is called *ibah*, and the father replies by presenting four pigs to the elder and a fifth pig to the younger of the boy's mother's brothers. This corresponds to the ceremony called *ri seusep baran metuan* in the case of a girl. Here, however, it is called *namas* (spear), and it leads to a dramatic scene. The boy holds the spear in one hand,

¹ This word is also used for a nose-stick.

² Though I have no note on the subject, the operator is also presumably paid for his services.

This may mean the evening before.

while his father gives him the four pigs, which he hands over to the elder mother's brother. Then the father hands the boy the fifth pig. To receive this, a mother's brother has been chosen who is fierce and a great fighter and a "terrible man." This man stalks in fiercely towards the boy, takes the pig from him and hands it over to a friend to tie it up. Then he seizes the boy's spear and digs it into the ground so that it bends and breaks. Then he turns to all assembled and addresses them furiously: "You see how I take this spear, and break it. This shows you my power, that I break this spear and you dare not touch me. Just so, if presently this boy dies through your fault, will I come back and kill that man who let him die." And he stamps about, and goes through the motions of killing a man. Then he breaks the halves of the spear again, throws them on the ground, and stalks off the dancing-ground back to his friends.

The patients now lie down in the club-house and have their wound dressed. Leaves called *na-ma-gi* are rubbed in the hands and wrapped in *na-ari* leaf and placed in the ure. They are taken out, the *na-ari* is thrown away, and the juice of the *na-ma-gi* not squeezed on to the wound. This is continued for some days, and is said to be the only medicine used. During this time the boys are supposed to remain in the club-house, but in reality they may go out, so long as they are not seen by women.

In about ten days, when the wounds are healed, a day is appointed for the boys to issue from their seclusion. Before they come out a pudding is made and put in the fire. In the morning they go to bathe in the sea or river. Dry coco-nuts are ground up and they are rubbed over with the oil. Then they are made very "flash." Fowls' feathers are put in the front part of their hair, and they wear a special pendant made of matted coco-nut-fibre, painted with inverted triangles, hanging down over their penis-sheath.¹ Those who have been incised, accompanied by all the other boys of the village, roam the bush, shooting at trees with their bows and arrows. When they return to the village they all shoot at a banana placed in the dancing-ground. Gongs are beaten (*raavai-gon*), and they all go back into the club-house and eat the puddings prepared for them in the morning.

Note.

It will be seen that proceedings are almost identical in the initiation rites of both boy and girl.

Each seems to be regarded as a preliminary to marriage (see below).

In each, the candidates bathe before and after the rite, and in the case of boys the operation is performed by the side of the sea or river (in Atchin this is not so, but there is a subsequent scene on the shore).

The boys use the club-house, while the girls use a specially constructed house in the bush.

In each there is the same formal exchange of pigs, the mother's brother presenting one to the father (*batel*), and the father replying with four pigs given to the elder mother's brother and a fifth to the younger.

A further similarity lies in the shooting expeditions after seclusion both of boys and girls. In the case of boys, these are led by the incised themselves, followed by those not yet incised. In the case of girls, they are led apparently by the unincised boys, followed by small girls imitating them with canes, though the account does not say whether the girl who is the subject of the ceremony goes with them or remains in the house.

MARRIAGE.

My informant appears to regard incision as an immediate preliminary to marriage, for he says:—

"After incision" a day is appointed, and the bridegroom takes three pigs and goes to the girl's village. With him go his friends in great numbers. The relatives of the girl have also

¹ Specimens of these may be seen in the Cambridge Museum of Archaeology and Ethnology.

assembled in force, bringing yams which are piled in a great heap by the side of the girl's basket.

The two parties face each other from either side of the dancing-ground.

First, the girl's father sends a pig (*numbua's pititani*)¹ across to the bridegroom. Then the bridegroom's people, having brought with them large numbers of arrows, cross the dancing-ground and present one to each of the bride's people, and return to their own side. They advance again and present the three pigs to the girl's people, one for her basket, one for her turbo-shell bracelet, and lastly, one for the girl.

The girl's people then fasten all the arrows to a stake (of any wood) and return them to the bridegroom's people, and present a pig "for the stake." The girl's father now sends over a *numbua's* leaf, which is the leaf out of which the (? plated) penis-sheath is made, to the bridegroom, who holds it in his left hand and touches it lightly with his right. After this, the girl takes the leaf and holds it over her head.

The bridegroom, holding in his left hand his bow and a quiver (*unawagati*) decorated with fowls' feathers, and with his club (*numbua's abay*) slung over his shoulder, advances towards the girl and touches her on the shoulder with the bow and quiver. Then he turns back towards his own people and raises the club on his right shoulder. His people advance, take hold of the girl, and lead her away, her friends weeping. Others take her basket and all the yams that have been placed by it, and all return home with the bride.

¹ This appears to be the same word as that used for the girl's initiation ceremony.

DUALISM IN WESTERN BANTU RELIGION AND SOCIAL ORGANIZATION.

By E. TORDAY.

THE Western Bantu have always been reluctant to confide their beliefs to strangers. Writing in the middle of the eighteenth century, Proyart stated, quite correctly, I believe, the reason for this reticence: "*Ces peuples, pour ne pas exposer leur religion au mépris, sont très réservés à en parler aux Européens.*"¹ Even if we are successful in overcoming their fear of ridicule, we are still in danger of making mistakes by reading our own ideas into their minds. They may attach to a word quite a different interpretation to ours, as, for example, in the case of God. To us it conveys the notion of a personal agent, an object of religious worship, conscious, and with powers superior to man, believed to direct and control the course of nature and human life, and, consequently, to be propitiated and conciliated.² All early travellers have honestly striven to find out if the newly discovered savages believed in a supreme, personal God: but while they were asking questions about the Creator, they received answers about creation. The idea of a personal Creator being alien to the Bakongo's conception of the Universe, they accepted easily enough a foreign word, but never followed their teachers in raising the first cause to the dignity of a supreme divinity. The foreign word spread with the white man's occupation of the continent, even preceding it by the indirect expansion of his influence. Where the contact with Christianity was constant and close, the black man's cosmic philosophy changed gradually into a religion of which *Nzambi Mpumbe* became the high-god. But the word travelled faster than its European conception, and when we meet with it in the far interior we must resist the temptation to give it the same value as it has in places where missionaries have laboured for centuries.

The nature of the Supreme Being attributed to the western Bantu is clearly stated by the greatest authority on this subject, the learned Jesuit Van Wing, especially in a paper contributed to *Recherches des Sciences Religieuses*.³ *Nzambi Mpumbe*, creator and propagator of all things, is essentially personal: he is invoked in case of private and public calamities, though no set prayers are addressed to him, and he has no special priesthood. Oaths are taken in his name, and it is he who decides the span of man's life and the fate of the surviving soul after death. On the last point the author has subsequently altered his views, and expresses the opinion that it is not God, but the ancestors, who reward or punish in the life beyond.⁴

¹ *Histoire de Loango, etc.*, 1776, p. 187.

² Sir J. G. Frazer, "The Golden Bough," in *The Magic Art*, vol. i, p. 222.

³ "L'Être Suprême des Bakongo," in *Recherches des Sciences Religieuses*, 1920, p. 81.

⁴ *Études Bakongo*, p. 171.

Father Van Wing's credentials are: Diligent research extending over a score of years among the Bakongo, a charming and sympathetic personality, a perfect knowledge of the language and, what counts perhaps for even more, an unparalleled acquaintance with their spoken literature. The fact that he is an ideal field-worker must not blind us to the possibility that the heathen Bampungu among whom he carried on his researches may have been affected by foreign influences. Even if they themselves were never Christians,¹ their close neighbours were so in the sixteenth and seventeenth centuries, nominally, at any rate, when the State religion in Kongo was Roman Catholic; and though their Christianity was probably never very deep, and has since fallen completely into oblivion, there certainly remains something at the back of their minds of the new faith which came to their country centuries ago. It is a universal practice among them to add a swagger name to their official one, and this is generally the Portuguese form of some saint, such as Domanuele, Dompetelo, Ndona Zabela.² They speak of such a name as *santa diamo* (my saint), though they have not the faintest notion of the nature of a saint, and give them interpretations based on some real or fancied resemblance to a Kisikongo word. Surely, if they remember the names of the patron saints given to their ancestors, or to the neighbours from whom they have borrowed the custom, when they were baptized in batches of hundreds by the early Capucins, it is at least probable that they should also retain the name and something of the attributes of the Deity in whose name they were bestowed: this was *Nzambi Mpungu*.

The derivation of the name *Nzambi Mpungu* has been the subject of much speculation. Father Van Wing, who sticks to facts and disdains guesses, states that he does not know it, and we may take this to prove conclusively that the Bampungu have formed no idea on the subject. Bentley also states that the root of *Nzambi* cannot be found in Kisikongo.³ It sounds, none the less, like a Bantu word, and occurs frequently in that language with various meanings. Both Cavazzi⁴ and Proyart⁵ mention a skin disease so called: the earlier writer says that it is the title of the doctor curing the disease, while the latter says the illness bears the name because it infects people who have committed perjury in the name of *Nzambi*. A painful eruption of the skin is to this day called *nzambi*, and it is generally believed that those who break the laws of the ancestors will be afflicted with it.⁶ Bentley, in his Dictionary, gives *nzambi* as a respectful answer to a call: the word is also used,

¹ Fathers Jerome de Montesarchio and de Volterra passed through the country on their way to the Kwango, but made no prolonged stay.

² R. P. J. Van Wing, *Études Bakongo*, p. 116.

³ Rev. W. H. Bentley, *Dictionary and Grammar of the Kongo Language*, p. 96.

⁴ Cavazzi, P. Gio., Antonio da Montecuccolo, *Istoria de' scizzione de' tre regni d'ongo*, etc. French translation by Lorbât, under the title *Relation historique de l'Éthiopie Occidentale*, Paris, 1732, vol. i, p. 236.

⁵ *Histoire de Loango*, etc., p. 188.

⁶ Van Wing, *De Geheimen Sekte van 't Kimpasi*, p. 17.

with the prefix *Na* (lord) as the title of one of the inferior priests acting at initiation.¹ *Mpungu* is a very common word. Bentley says it stands for *ampungu* (the highest). It is also the name of a charm found in every village to protect it against disputes, witches, and evil spirits,² and there are also certain images³ called *Mpungu Ntete*, *Mpungu Basa*, *Mpungu Sekula*, which chiefs have to bring to the *Longo* initiation ceremony.

The name *Nzambi* is found, with trifling modifications, over a great part of Bantu Africa—from the Bakongo in the West to the Barotse in the east,⁴ from the Bangala on the northern bend of the River Congo⁵ to the Ova-Herero in the south.⁶ It is easy to trace its advent among the Bangala and Herero. Early travellers among the Bangala (Westmarck⁷ and Coquilhat⁸) report that the Creator, or his vague equivalent, was called *Ibanza* or *Libanza*: Father Cambier⁹ gives his name as *Djakomba*. Mr. Bentley manages to turn both of these into *Nzambi*, by dropping inconvenient letters and syllables and arranging the remainder to suit his purpose.¹⁰ The real state of affairs is made perfectly clear by his colleague, Mr. Weeks. In a communication written in 1899,¹¹ he not only states that *Libanza* was the Creator, but also that the natives believed in a destructive principle, the giver of sickness, and the source of all evil—and his name was *Njambe*! What happened probably is that when one of his Christian boys from the Lower Congo fell ill or died, his fellows naturally attributed this misfortune to God, and at first sight *Nzambi* appeared to the unsophisticated natives as the spirit of disease and destruction. During the following years the labours of the missionaries bore fruit, and Mr. Weeks could write in 1914 that *Njambe*, the god of the Bangala, "is regarded and spoken of by them as the principal creator of the world, and the maker of all things."¹² This does great credit to Mr. Weeks the missionary, but detracts somewhat from his merits as a field anthropologist. Such a confusion between God and the Devil does not stand isolated. Proyard records in the middle of the eighteenth century the existence in Loango of *Nzambi mbi* (*Nzambi* the bad), who, he says, was nothing less than Satan himself.¹³

¹ Van Wing, *De Geheimen Sekte in 't Kamputo*, p. 18.

² Id., *Etudes Bakongo*, p. 185.

³ Id., "Nzo Longo," in *Congo*, 1920, vol. II, p. 580.

⁴ Alfred Bertrand, *The Kingdom of the Barots*, p. 227.

⁵ Rev. John H. Weeks, *Among Congo Cannibals*, p. 247.

⁶ J. Irle, *Die Herero*, p. 72. Kolbe's *Herero Dictionary*, Meinhof, in *Allgemeine Wiss. Zeitschr.*, 1899, p. 394, says "Njambe Karunga" means "fate." Smith and Dale (vol. II, p. 204 *et seq.*) give, among other interpretations, the same meaning to "L. za."

⁷ *Bull. Soc. Géogr. Commercial*, Paris, vol. VIII, pp. 432-3.

⁸ *Congo Belge*, vol. VI, p. 334b.

⁹ *Mission Chino Congo*, 1891, pp. 412-13.

¹⁰ *Pioneering on the Congo*, vol. I, p. 248.

¹¹ *Missionary Herald*, London, 1899, p. 260.

¹² *Among Congo Cannibals*, p. 247.

¹³ *Histoire de Loango, etc.*, p. 188.

Among the Ova-Herero we can observe a somewhat similar development as among the Bangala. The first Rhenish missionaries came into contact with them about 1844. Believing that "*Muk-ura*," their word for "ancestor," stood for a supreme deity, they adopted it, and used it in their teachings and translations for "God." It is only about a quarter of a century later that they mention *Ndjambe* for the first time, and then it is used jointly with the word *Karunga*. The new word is linked to an ancient one, just as the foreign and native conceptions of creation and divine power begin to merge into each other. All over Central Africa we find the same process going on: *Nzambi* is taking the place of ancestors and creative principles such as *Nfidi Mukulu* (through the positive efforts of the American Presbyterian missionaries).² *Mulohwe*, *Kapezya*, *Kalunga*, *Mbumba*, and others.

The origin of the word *Nzambi* can be connected with the known history of Kongo. When Diego Cão discovered the River Congo in 1482 he had on board some native interpreters from the Guinea Coast, where several tribes use the words *Oyambe*, *Ongum*, *Ngum*, etc., for the Supreme Being. On his arrival, Cão was given to understand that there existed somewhere inland a great king, the Ntotila of Kongo. To establish relations with him, Cão sent some of his Guinea men with suitable presents on an embassy to this potentate while he set sail for the south. He came back sooner than expected, and found that his men had not yet returned from their mission. Naturally anxious to proclaim his great discoveries to the world, he would not delay his departure for Portugal, and left his interpreters behind him, marooned in Banza Kongo (San Salvador) till his return in 1485. These men had been treated at first with distinction, but when the Ntotila heard that Cão had forcibly taken hostages with him, they were no longer admitted to the king's presence and had to shift for themselves.³ They now naturally learned the language, and were subsequently the means of communication between the natives and the Portuguese who, as Cavazzi points out with indignation, never took the pains of acquiring the use of Kisikongo and were entirely dependent on their interpreters.⁴ The first missionaries, Dominicans, Franciscans, etc., and those who followed them up to the time of the second mission of the Jesuits (1623-69), were equally ignorant, and taught and preached by means of interpreters. If it can be shown, as I hope to show, that the Bakongo had at this early period neither the notion of a Supreme God, nor a word to express this notion, then we are justified in assuming that these interpreters used a word of their own language to convey the message of the missionaries, and that *Nzambi* is a corruption of *Oyambe* or of the Akan name for the Supreme Being *Ngnum*. The acceptance of

¹ In 1870 (see Irle, *op. cit.*, p. 72).

² W. M. Morrison, *Buluba-Lulua Language*, p. 198.

³ Battell, *The Strange Adventures of Andrew*, edited by Ravenstein (Hakluyt Society), *note*, p. 105 *et seq.*

⁴ Cavazzi, *op. cit.*, vol. iii, pp. 155 and 159. Van Wimp, *Etudes Bakongo*, pp. 37 and 48. The Jesuits Vez and Cardozo, 1623, were the first to apply themselves to the study of the language.

the word did not imply, for a long time, at any rate, the acceptance of the idea for which it stood. *Nzambi* never meant to the natives the same thing as it means to Europeans, and to this day such an interpretation is limited to those who were brought up from childhood in the Christian faith. This confusion of ideas is the greatest difficulty of the missionaries. Mr. Bentley states¹ that the Bakongo's idea of *Nzambi* is confused and vague, and adds that their belief is purely nominal. Father Van Wing² is not less explicit: "even the idea of *Nzambi*, the Supreme Being, has scarcely become Christianized, though the missionaries have adopted this word to preach the Christian faith." *Nzambi* is not the only word which was imported and generally used by the missionaries for the new divinity, and subsequently substituted by the natives for the name of the creative principles according to their own ideas. It is, I believe, not generally known that in some parts, perhaps in those where interpreters trained in Portugal were employed, the names of Jesus and Deus were adopted. To this day *Deisos* is sometimes heard among the Bavili.³ But even these were soon given a new meaning. Father Cavazzi, whose book, unfortunately never translated into English, is a storehouse of information, mentions the use of these names, and relates⁴ that the most obstinate, unconvertible pagans were a tribe which used the name *Desu* for the Creator, to whom they attributed improper (probably reproductive) rites (*pratiques*). For the Western Bantu, *Nzambi*, *Desu*, *Deus* were not the names of the God whose Gospel the missionaries preached, but just new appellations for the nature forces called *Bunzi*⁵ (or *Luuaga*) and *Mbumba* in Mayombe, and *Kalunga* and *Mbumba* in Kongo, Angola, and many other parts of Africa. The transition stage in the form of *Nzambi-Bunzi*⁶ or *Ndjambe-Karunga*⁷ and *Karunga-Ndjambe* is met with. Among the Bakongo both *Kalunga* and *Mbumba* survive in the initiation ceremonies, and in the traditional songs we meet with invocations to "sovereign *Mbumba*" besides curses and oaths in his name. Heathen Bakongo, when they throw an offering of food on the ground, still appeal to "*Mbumba* of the earth."⁸ *Kalunga* means "the sea." The warlike Bapinji in the Kwilu region still give his name when asked about the Creator, while the more commercially minded Bapende, their kinsmen and neighbours, who have been in contact with the coast, use *Monzam*, a corrupt form of *Nzambi*. I have met with it as far inland as among

¹ *Dictionary, etc.*, p. 96.

² *Etudes Bakongo*, p. 113.

³ R. E. Dennett, *Seven Years Among the Fjout*, p. 47.

⁴ *Op. cit.*, vol. i, pp. 242 and 243.

⁵ R. P. Leo Bittremieux, *Mayombesch Idiotisme*, vol. ii, p. 545. *Bunzi* is probably a word which has survived from the pre-Kongo period in Mayombe, and may be identical with the Upper Congo *Ibanza* who "lived under the sea." (Bentley, *Pan-Afric.*, vol. i, p. 250.)

⁶ *Ibid.*, vol. i, p. 83.

⁷ *Ire, op. cit.*, p. 72.

⁸ Van Wing, *Etudes Bakongo*, p. 83. *Congo*, 1820, vol. ii, p. 240, 1921, vol. i, p. 53. Bentley, *Dictionary, etc.*, p. 502.

the Badjokwe of the Congo-Zambesi watershed¹ and among the Baluba-Hemba on the Lualaba.² *Mbumba*, all over Bantu Africa, means "clay," and implies shaping, as the moulding of pots. In many parts it has not yet been ousted by a foreign word,³ and is accepted by missionaries as meaning the first cause. *Mbumba* also means "mystery," and is associated with fruitfulness, while *Bunzi* is the giver of rain, fertility and all good things: his symbol, according to Dennett,⁴ is the south wind, the bringer of rain. In Christianized Loango, *Bunzi* is still prayed to for rain, and skins of leopards are offered to him when rain is wanted.⁵ In the mind of primitive man that which favours the production of the necessities of life becomes the first cause of it. Father Bittremieux, a great authority on Mayombe, where he has resided for many years, states that it is the archaic form of *Nzambi*.⁶ If the Bayombe consider the south wind linked with *Bunzi*, this does not mean that they identify one with the other. This may appear self-evident, and yet Father Bittremieux falls into a similar error by identifying the rainbow with *Mbumba*. Wherever the Kongo language or its derivatives are spoken the rainbow is called "*Kongolo*" (the arc)⁷: I have heard "*Kongolo meme*" (the water arc) and "*Kongolo Mbumba*" (the arc of Mbumba); in Mayombe "*Ntsama, nkiama*" are generally used.⁸ Father Bittremieux says that *Mbumba*, more commonly called *Mbumba Luangu*, is the Kiyombe name for the rainbow.⁹ It is noteworthy that Craven in his Kongo Dictionary gives *Muluango* as meaning "rainbow," and does not couple it with *Mbumba*. The relation of *Muluango* to *Kalunga* will be dealt with at the end of this paper. In fact, the rainbow stands in the same relationship to *Mbumba* as the south wind stands to *Bunzi*; or, to take a similar case in English, as the sky stands to the theological Heaven. The Batetela call both the creative principle and the sun by the same name, but simply laughed at me when I suggested that the sun might be the active principle of creation. The sea, the south wind, earth, and the sun are examples of symbols, so common in Bantu speech and Bantu art, which constantly baffle the field-worker. He is a bold man indeed who presumes to be able to distinguish between hard facts and figures of speech when dealing with

¹ E. Torday and T. A. Joyce, *Notes Ethnographiques sur les Populations des Bassins du Kasai et du Kwango Oriental*, p. 293.

² Colle, *Les Baluba*, p. 496.

³ R. P. Gilliard, *Congo*, 1922, vol. i. p. 46. Mgr. Leroy, in his *La Religion des Primitifs*, also mentions the use of "*Mbumba*" for the Supreme Being.

⁴ Bentley, *Dictionary, etc.*, p. 344. R. E. Dennett, *At the Back of the Black Man's Mind*, pp. 115, 116, and 137.

⁵ Dennett, *Black Man's Mind*, pp. 67 and 144.

⁶ *Op. cit.*, p. 545.

⁷ Bentley, *Dictionary, etc.* Canneccatti. Bunda Dictionary. Torday and Joyce, *Journ. Roy. Anthropol. Inst.*, vols. xxxv. p. 422; xxxvi. pp. 56 and 295.

⁸ Bittremieux, *De Geheimen Sekte der Bakhimba's*, p. 121. Dennett, *Black Man's Mind*, p. 142; *Folk Lore*, p. 6.

⁹ Bittremieux, *Mayombesch Idioticon*, p. 387.

the African. The effect may be substituted for the cause, and one cause may be replaced by another if they produce the same effect. Livingstone gives a fine example of this. The great explorer asked a Mochuana what he meant by "holiness." "When copious showers have descended during the night, and all the earth, the leaves and cattle are washed clean, and the sun rising shows a drop of dew on every blade of grass, and the air breathes fresh—that is holiness."¹ One is naturally tempted to think that Livingstone has put his own thoughts into the native's mouth. Nobody who has conversed intimately with Africans will share this view. The Bantu is not a theologian but a man of strong emotions, and, to define "holiness," he gives an account of his feelings in its presence, or, more correctly, of an occasion when he was moved in a similar way. This figure of speech is very effective and very much to the point. Rain, sleek cattle, luscious grass may not affect us as they do a Mochuana; but are there no natural phenomena, as for example the sight of the rising sun suddenly inundating an alpine range with its rosy glow, which make us feel the emotions of a pious Moslem kissing the Kaaba, a devout Catholic entering the presence of the Pope, or a Bantu standing in front of his ancestor's shrine?

It is in vain that we search the earliest accounts of the Bakongo and kindred peoples for the word and idea of *Nzambi*. The first book on Kongo is by Duarte Lopez. His experiences must have been wide, as he stayed nine years in the country (1578-87), and enjoyed the confidence of the Ntotila to such an extent that he was finally sent by him on an embassy to the Pope. This extremely serious investigator has suffered somehow at the hands of his editor, Pigafetta, who, wishing to enlarge the scope of his book, added a lot of doubtful matter concerning parts of Africa which Lopez had never visited. This must not prejudice us against Lopez, whose information concerning Kongo is reliable on the whole, and has been, for the most part, corroborated by successive travellers. He describes honestly what he saw or heard, but being ignorant of the language he frequently errs in his interpretations. He gives detailed accounts of the people's religion and frequently transcribes the native words used by them, though these are not always easy to identify. He says the natives were pagans and worshipped idols. Neither the word "*Nzambi*," nor any other which might be taken for a corruption of it, can be found in his book. He relates that each person worshipped such idols as best suited his taste: their gods were "serpents, beasts, birds, plants, trees, various kind of wood and stone, carvings also on wood and stone, representations of the above to form pictures. And not only did they worship living animals, but also those stuffed with straw."² We must not take him too literally: he knew not the difference between worship and magical rites, just as he uses the word "idols" like all his contemporaries, in a very broad sense. The important point is, that he definitely states that before the advent of Christianity the people of Kongo knew of no living God.

¹ *The Zambezi and its Tributaries*, p. 64.

² *History of the Kingdom of Kongo*, p. 87.

We meet the word "*Nzambi Mpungu*" for the first time, and there once only, in *The Strange Adventures of Andrew Battell*, taken from the mouth and notes of this valiant Essex sailor by Purchas. Battell was taken prisoner by the Portuguese and deported to Kongo: he arrived there in 1590, and spent eighteen years in the country. During one of his several attempts to escape he fell in with the Jaggas (Bayaka), and lived with them for twenty-one months: later again he dwelt for six months among natives, and for a considerable time he travelled about trading for the governor. We may assume that he acquired a good knowledge of the language, and this is borne out by internal evidence in his narrative. He was a remarkably keen observer, and many of his descriptions fitted exactly the conditions I found prevailing in 1904 in the Bayaka region. Every word of his rings true, and the simplicity of his account is most convincing. He visited Loango and Mayombe (which is ethnically, and was formerly politically, part of it)¹ in about 1600. He says that the inhabitants knew of no other religion than that of *Maramba*, in whom they believed, whose laws they obeyed, and whose relics they carried with them. Newly circumcized boys were dedicated to *Maramba* when ten to twelve years old, "but, for probation, are first put in a house, where they have hard diet, and must be mute for nine or ten days, any provocation to speak notwithstanding. Then do they bring him before *Morumba* and prescribe him his *Kin*, or perpetual abstinence from certain meat."² This passage is of such importance that it is necessary to analyse it. Who is this mysterious *Maramba* or *Morumba* with whom we no longer meet in our days? Battell has tripped over one of those figures of speech to which I referred previously. A Muvili going to the enclosure where initiation takes place will say, "I go to the cross-roads," because it is usually situated there;³ and the word for "cross-roads" is "*mayumba*." This "house of religion" finds in our days an unworthy descendant in the enclosure of the Bavili "secret sect of Bakimba," which honours *Mbumba Luango*, and keeps there *Tafu Maluango* "the emblem (*zannebeeli*) of the *akisi*-snake which we call 'rainbow,' consecrated in its turn to the spirit of the earth."⁴ This "fetish" is also called *Mbumba Luangu*.⁵ Since Battell's days religious practices have much degenerated in Mayombe as well as in certain parts of Kongo,⁶ but this passage proves clearly that Battell has observed, or, at any rate, heard of, the initiation ceremony known in Kongo as *Longo*. This takes place in *Nzo Longo* (house of Longo), which is taboo. The word "*nlongo*" means, according to Father Bittremieux,

¹ Dapper, *Africa*, pp. 321 and 332.

² Battell, *op. cit.*, pp. 56 and 82.

³ Bittremieux, *Mayombisch Idioticon*, p. 222; *Bakhomba*, p. 48.

⁴ Bittremieux, *Mayombisch Idioticon*, p. 504. *Nkimba*, mentioned already by Dapper (p. 337) as *Cymbos-Bombas*, is an astonishing mixture of *Kimpasi* and *Longo* ceremonies as practised in Mayombe. The name of its "fetish" *Mbumba Luangu* indicates such a fusion. An excellent description of it can be found in Bittremieux, *De Geheimen Sekte der Bakimba's*.

⁵ Bittremieux, *Mayombisch Idioticon*, pp. 320 and 387.

⁶ Dennett, *Black Man's Mind*, p. 132. Van Wung *Kimpasi*, p. 82.

"taboo to look at the great earth spirits as represented by certain stones in the forest, *nkisi ntsi*."¹ I shall show later that this interpretation needs to be amended; but the linking up of *Maramba* with *Bakisi batsi* (plural) is a matter of some importance. *Bakisi Batsi* (or *baci*)² are the mysterious forces (*nkisi*) of the earth (*ntsi* or *nei*) with the personal plural prefix "ba," and as such include the dead ancestors, *Bukulu*, who live in the bowels of the earth,³ and are the guiding voices of the dead. We may thus infer from Battell that it is in them alone that the Bavili believed; it is their laws which were kept and their relics which were always carried with them. When he says that "they are sworn to this religion at ten or twelve years old," he shows that the elan initiation ceremony, as a rite of ancestor worship, with seclusion, circumcision, infliction of a taboo, and ordeals, is an old institution, though Bentley denies its existence.⁴

It seems strange that after declaring that *Maramba* is the only religion of the Bayombe, Battell should say that "the king is so honoured as though he were a god among them, and is called *Sambe* and *Pongo*, that is God,"⁵ all the more so as "Nzambi" has only recently become a name in common usage in Mayombe. Battell probably used a word with which he had become familiar in San Salvador, whence he came, and applied it to the king who, as the living ancestor, *Muluango*, exacted something like divine honours, and, as rain-maker, claimed divine powers. The word never occurs again in his book.

Father Antonio Cavazzi, of Monteeucole, is beyond doubt our best authority on the early days of Kongo. He went there in 1654, stayed till 1667 and, after spending about three years in Rome, returned in 1670 for another long stay. He affirms his knowledge of the language by damning all missionaries who are ignorant of it.⁶ Whilst living in the capital he observed the belief in *Nzambiampango*, but says that other gods were not less adored and worshipped.⁷ For many years after Cavazzi Christianity was but a cloak to the natives, and "they had two strings to their bow: the Catholic and the pagan faith."⁸ When he comes to the interior, among the Jaggas (Bayaka), he finds that the most pronounced characteristic of their religion is the worship of the dead; they have no ideas of an intelligent, supreme, all-powerful God; they have no other gods than their ancestors, and do not even possess a word in their language for the Supreme Being. It is the ancestors who are invoked, and

¹ Bittremieux, *Mayombesch Idioticon*, p. 517.

² Dennett, *Black Man's Mind*, p. 167.

³ Bittremieux, *Mayombesch Idioticon*, pp. 595, 598, and 148. Dennett, *Black Man's Mind*, pp. 81 and 82. "Tsi" may also mean "country" in the regional sense (see Bittremieux, p. 673.. Bentley, *Dictionary, etc.* ("nxi"), p. 493.

⁴ Bentley, *Dictionary, etc.*, p. 507. Weeks, however, has observed initiation in the very part of Kongo where his colleague resided (see *Primitive Beliefs*, p. 171 et seq.).

⁵ *Op. cit.*, p. 46.

⁶ *Op. cit.*, vol. iii pp. 155 and 159.

⁷ *Ibid.*, vol. i, p. 240.

⁸ Dapper, *op. cit.*, p. 357.

it is to them that first-fruits are offered.¹ Further south in Angola he finds that the queen law-giver, Tem-Ban-Dimba, has restricted their whole religion to the worship of the departed.² Their "idols" are kept in bags and boxes: statues and temples are erected for them.³ Their priests and priestesses bear the name of the special idol they attend, and every province has its own idol.⁴ These idols correspond to the ancestral baskets of the Kongo claus,⁵ but the presence of anthropomorphic carvings appears at first strange, these being strictly taboo in the ancestral huts of Kongo. But this taboo does not seem to have been universal, for Dennett observed at the coronation of a Bavili chief the display of a statue of his predecessor, still wearing the cap, insignia of chieftainship, which was in the course of the ceremony transferred to the head of the new chief.⁶ Cavazzi then states that "in olden times the kings of Angola adored an idol called *Calunga*, i.e. the sea, or, according to others, the Supreme Lord."⁷ Cavazzi uses the word "idol" as loosely as "fetish" is used nowadays: it seems to imply anything which has to do with religion or magic.

The next important witness is the Capuein Father Jerom Merolla of Sorrento, who went to Kongo as a missionary in 1682 and made two stays in the country. He was not an ideal missionary, but he had a quick eye for interesting things, and if we take his failings into account we find in him a useful guide. He mentions *Ziambiabungu* once in the text, and gives *Zambianbunco* for "God" in his glossary. In the text the word occurs in connection with a purely Christian ceremony. An image of the Holy Virgin was carried in procession in Cabinda, and the native women "clapp'd their Hands after the manner of Devotion and cried out in their Language, *Equadi Ziambiabungu, magotti, benchi, benchi*. That is, This is the Mother of God, oh how beautiful she is."⁸ "*Equadi*" is a corruption of "*Na Ngudi*," a title of honour of matrons, and the last three words stand for *mbote mingi, mingi* (very, very good), the words a stranger learns in Kongo as soon as he has given his first tip. That this had nothing to do with native religion is clearly shown by Merolla's account that the people of Cabinda were given to worship "clouterly carved idols."⁹ Friar Anthony's efforts to convert the famous or notorious queen of the Jaggas, Zinga, make interesting reading. The pious Friar addressed her as follows: "Madam, when I behold so many large and fruitful Valleys, enrich'd and adorn'd by so many Chrystal Streams, and defended from the Injuries of Weather by such high and

¹ Cavazzi, *op. cit.*, vol. ii, pp. 159-61 and 172-4.

² *Ibid.*, vol. ii, p. 244.

³ *Ibid.*, vol. ii, p. 242.

⁴ *Ibid.*, vol. ii, p. 245. Torday and Joyce, *Man*, 1907, p. 52: In the Kwilu region, the Bambala Muri (probably survivals of the crowned chiefs, high-priests of ancestor worship), take the name of the bracelet which they inherit with their rank from their predecessor.

⁵ Van Wing, *Etudes Bakongo*, p. 143.

⁶ *Black Man's Mind*, p. 19.

⁷ *Op. cit.*, vol. ii, p. 272.

⁸ Jerom Merolla, *Churchill*, vol. i, p. 716.

⁹ *Ibid.*, p. 719.

pleasant Hills, all under your Majesty's command. I cannot forbear being so bold, as to ask who was the Author of these? Who fecunded the Ground, and afterwards ripens the Fruit?' To which the Queen, without the least Hesitation, readily answer'd, 'My Ancestors.'¹ This passage is ambiguous. If the notions of the Jaggas do not differ from what we know of practically all Bantu, the queen attributed only the acquisition and the fertility of the land to her ancestors. Ancestors are creatures, and creation is not among their attributes.

Another passage in Merolla relates to the priesthood of ancestor worship and the rôle attributed to the priests by their followers. "Let us proceed to speak of other Wizards, who commonly die violent Deaths, and that for the most part voluntarily. For the present I shall speak only of the Head or Chief of these Wretches, from whom the rest take example. He is call'd in the Country Language *Ganga Chitorne*, being reputed the God of the Earth, and to whom is consequently paid the first Fruits of all it produces, due to him, as they say, as its Author, and not either to the ordinary Work of Nature, or to the extraordinary one of Providence. This Power he also boasts to be able to communicate to others, when and as often as he pleases. He further asserts, that his Body is not capable of suffering natural Death; and therefore to confirm his Adorers in the Opinion, whenever he find his End approaching, either thro Age or Disease, he calls for such a one of his Disciples as he designs to succeed him, and pretends to communicate to him his great Power and afterwards in Publick (where this Tragedy is always acted), he commands him to tie a Halter about his Neck, and to strangle him therewith. . . . If this Office were not thus continually fill'd, the Inhabitants say, that the Earth would become barren, and Mankind consequently perish. In my Time one of these Magicians was cast into the Sea, another into the River, a Mother and her Son put to Death, and many others bannish'd by our Order, as has been said."² Merolla's unfortunate victims were obviously the so-called "crowned" chiefs, i.e. the spiritual heads of clans and priests of ancestor worship. Their attributes, the general veneration which they rightly inspire, their voluntary violent death, are minutely described by Father Van Wing.³ "*Ganga chitorne*" might stand for "*Nganga chintoto*" (priest of the soil): but Cavazzi, familiar with the language, calls such a high-priest—considered God on earth, entitled to first-fruits, etc.—"*Chitombe*," and in another place, "*Chitomba*"⁴ "Ch" and "K" are interchangeable: the word corresponds thus to *Chitumba* and *Kutumba*, meaning "the presumptive," as e.g. in *Kutumba Kifume* (the heir-apparent to the chieftainship). Such a "crowned chief" was presumptive ancestor of the clan. Otherwise Cavazzi agrees with Merolla, without sharing his fanaticism, and adds that no chief

¹ Jerom Merolla, *Churchill*, vol. i, p. 746.

² *Ibid.*, p. 681.

³ *Etudes Bakongo*, p. 138 et seq.

⁴ *Op. cit.*, vol. II, pp. 254 and 269.

or governor was obeyed by the people unless he was recognized by this sacred chief.¹ The secular power requires the sanction of the spiritual. Cavazzi mentions that nobody, not even princes, may enter the *Chitombe's* hut.² Merolla attempted to do so, but had to retreat before the threats of the people.³

It appears then that up to the end of the seventeenth century, two hundred years after the advent of the first missionaries, the name of *Nzambi Mpungu* was unknown beyond the sphere of direct Christian influence: and, even then, if we may judge the past from the present, "Creator" was used in the sense of "creation": "God the Father," in that of first ancestor. This is illustrated by the following incident: Beyond the range of a Catholic mission a high-priest of the *Kimpasi* initiation ceremony, who generally bears the name of *Na Kongo* (the national ancestor), proclaimed himself *Nzambi*.⁴ In the middle of the eighteenth century Proyart finds in Loango *Nzambi a n'pongon* already spoken of as the creator and judge of men's actions.⁵ Since then, the word has made rapid strides and has conquered a great part of the continent. But the victory is only an apparent one. The natives know what the white man understands by the name, and answer his questions in a way which will give satisfaction. That has not changed an iota in their ancient beliefs, and they will confide now and then in a friend, like Mr. Junod, and tell him that creation is simply due to Nature.⁶ Nature is something kind yet awful, beneficent yet cruel; it is without hatred or favour, like the immense expanse of the sea (*Kalunga*) and the ever fruitful earth (*Mbumba*). An Ila philosopher⁷—whether he be wrong or right as far as his own people are concerned—has got to the bed-rock of Western Bantu belief, when he said that creation was due to the conjunction of the Sky, *i.e.* Rain and the Earth. The beginning of all things is not due to the two elements as such, but to the reaction of one on the other, and their continuance is attributed to the same cause. Creation is the original procreation. What is, has always been; life started as it is maintained. As they see water, in the shape of rain, produce the fruits of the soil, the Bakongo believe that *Kalunga* and *Mbumba*, their prototypes, united to bring forth the Universe. And this dualistic idea pervading their religion is reflected not only in all its phases, but also in their conception of human society, including the ancestors, who are as living and loving to them as their parents who "still walk the grassy plain."⁸

Bentley stated many years ago that "the totem is transmitted from father to son,"⁹ but he was simply referring to a taboo which, contrary to the apparent usages

¹ *Ibid.*, vol. ii, pp. 256-7.

² *Ibid.*, vol. ii, pp. 258-9.

³ Merolla, *op. cit.*, p. 719.

⁴ Van Wing, *Etudes Bakongo*, p. 59.

⁵ *Histoire de Loango, etc.*, p. 188.

⁶ Henri Junod, *Life of a South African Tribe*, vol. ii, p. 279.

⁷ Smith and Dale, *The Ila-speaking Peoples*, vol. ii, p. 136.

⁸ Van Wing, *Etudes Bakongo*, p. 59.

⁹ *Pioneering*, vol. i, p. 263.

of inheritance, descended patrilineally. He did not notice that this taboo was the outward sign of something much more important, and that his discovery disclosed the existence of bilateral descent in Bantu social organization. The patrilineal taboos have no connection with the totem, for, if we use this word as implying a mythological descent from a totem animal ancestor, then the leopard, *Ngo*, is the only totem known to the Kongo nation in its widest sense, comprehending all peoples who at any time recognized the spiritual or temporal lordship of the *Ntotila*, the living incarnation of *Na Kongo*, the Lord Kongo. This includes the inland tribes far beyond the Kwilu and the various seceded kingdoms such as Loango, Kakongo, Mayombe on the right bank of the Congo, and, in the south, Angola. The question whether the name of this people, "Bakongo," is derived from *Ba-Ngo* or *Basi-Ngo* (the leopard-people) we shall never be able to decide, as little faith can be attached to etymological derivations. Nor can we accept unreservedly Dennett's unsupported dictum that *Ngo* was the name of the first *Na Kongo's* wife, though it must be noted that in Loango the sisters of the living ruler, potential mothers of kings, bore in his days the title "*Ngo*," i.e., "leopard."¹ The bearing of this on clans shall be dealt with later. The *Ntotila* is certainly more than an ordinary king, "*mutinu*" (*ntinu* in the archaic form), an appellation which he bears as a secondary title, and which has been also assumed since their emancipation by various chiefs (*mani*) of lesser countries who were formerly his vassals. *Ntotila* was translated in the seventeenth century as "his majesty," and Bentley interprets it as "emperor." But both these words imply a secular power, while there is palpable proof that *Ntotila* must be of a spiritual nature. The king of Kongo is the only person entitled to it in his lifetime, but lesser potentates, the former feudal princes, who are all scions of his royal house, also receive it after their death. This is, at any rate, the case with the king of Loango²; a fact which clearly implies ancestorship of some kind, a sort of holiness which is proper to the living *Urvater*, the incarnation of the first begetter of the nation (just as the Herero chiefs are living *Ovakuru*),³ but cannot be attained by the heads of the younger branches until after death. *Ntotila* is the totem incarnate, the leopard-man.⁴ It is well to remember, however inconsistent this may be with historical accounts, that from the native point of view there is really only one tribe, and that is Kongo, divided into exogamous branches, the result of quarrels and migrations. All these divisions, however, maintain their mystical allegiance and spiritual affinity to Kongo. Every person claims descent from Kongo,⁵ and whenever a woman bears a child she is delivered at the same time of a leopard, for that is the name, "*ngo*," by which the after-birth, "the brother born at the same time," goes.⁶ A

¹ *Black Man's Man*, p. 144.

² *Id.*, p. 24, quoting Bentley.

³ *Irlé, op. cit.*, p. 72.

⁴ *L'Ntotila* is a great oath. *Encyc. Dictionary, etc.*, p. 502.

⁵ Van Wing, *Etudes Bakongo*, p. 77.

⁶ *Ibid.*, p. 244.

leopard may be killed in self-defence only and the slayer has to retire into seclusion for three days after this sacrilege, probably for expiatory rites. The heart of the totem-animal, *i.e.* the part containing the greatest quantity of blood and, consequently, most of the soul, must be eaten by the sacred chief, or, in his absence, by the secular chief while the rest of the flesh is consumed by the elders after offering some to the ancestors. The hide becomes the couch of chiefs, and the claws, fangs and hair (whiskers would be more correct)¹ are deposited in the ancestral basket, there to mingle and to be worshipped with the relics of defunct chiefs and albinos, the latter being considered reincarnations of ancestors.² The taboos inherited, one from the mother and one from the father, can scarcely be connected with totems. They do not correspond to the name of the clan or tribe, which alone is treated with reverence: nor is there any trace of a belief that the life of each individual of the group is bound up with that of one of the tabooed species.³ Father Van Wing, however, records an incident which may be taken as a sign that in a remote past the tabooed object itself may have been totemic, the secondary totem of the gens or clan. One word for taboo is "*kinkonko*" (plural *binkonko*), and "*nkonki*" also means genital parts, "*ki*" being the prefix denoting "that which pertains to." In a game played by children, not unlike "*piggie went to market*," one finger after the other is closed upon the palm to the accompaniment of conventional rhymes: when the thumb alone remains erect, the child says: "and this is *munkonki* (the personal form of *kinkonki*), the root of the clan."

Bantu sociologists have paid much attention within recent years to the Kongo clan, *kanda* (pl. *makanda*), *ekanda*, or, in a more archaic form, *dukanda* (pl. *mikanda*), the social group comprehending all individuals of both sexes, dead, living, and to come who trace their descent in a direct uterine line from a common ancestress, first, original mother of the clan.⁴ There is no difficulty in tracing a person's mother, but, when it comes to the father, the Bantu conception of "*tata*," which has been translated (quite wrongly) by "father," has such a wide meaning that confusion is well-nigh inevitable. There are male and female "*batata*": besides the father provided by nature, a Mukongo may call his mother's sister, or brother, and certain grand-uncles, and even great-nephews "father" if the law of succession concedes this title to them.⁵ There is also a relationship through the father, "*katata*," which is exceedingly misleading: it defines the ties to one's father's matrilineal (clan) relatives.⁶ But there is a direct patrilineal relationship which

¹ Lopez relates that any person bringing a leopard -kin without the whiskers to the chief was severely punished (Pigafetta, *History of the Kingdom of Kongo*, p. 50).

² Van Wing, *Etudes Bakongo*, p. 147.

³ *Ibid.*, p. 118.

⁴ *Ibid.*, p. 125.

⁵ *Ibid.*, p. 118 *et seq.*

⁶ *Ibid.*, p. 131 *et seq.* Bittremieux, *Mayombesch Idioticon*, p. 438.

⁷ Van Wing, *Etudes Bakongo*, p. 134.

is entirely different: it is the gens. *luvila* (pl. *luvila*: in the archaic form, *mvila*, pl. *zinvila*).

Both Van Wing and Bentley say that the words *kanda* and *luvila* are synonymous and interchangeable.¹ Father Van Wing considers the tribe an extension of the clan, and yet he admits no distinct characteristics to them. However, he translates "*luvila lu nsi etu*" as "our tribe and country," and says, on the opposite page, that the only word denoting "clan" in a general sense (*en général*) is *kanda*.² He also contrasts the *Mpangu* tribe with the *Mpangu* clan.³ Father Bittremieux, on the other hand, is quite explicit: he says that "*dikanda*" means "matriarchal system," and the "*mvila*" stands for gens (*gestlacht*), descent (*afkomst*), sib (*sibbe*), tribe (*stam*), etc. He makes it quite clear that descent in the latter is patrilineal. A child belongs to his mother's clan, but is born into his father's tribe: he is freeman of the *kanda* and son of the *luvila*.⁴ Both clan and gens are exogamous in themselves: but where a *kanda* and a *luvila* of the same name exist side by side, the members of the one can freely intermarry with the other. Two persons who are "free" (*bapfumu*) of the clan Vaku cannot marry: they are brother and sister by descent. Nor can two persons who are children (*bwana*) of the tribe Vaku marry: they are brother and sister by origin. But a freeman of the clan Vaku may marry a girl, child of the tribe Vaku, for they are neither both free of the same clan nor children of the same tribe. There is no incest.⁵ Each tribe, or gens, traces its descent from a male ancestor in the male line, each clan from an ancestress in the female line. The tribes claim descent from Kongo himself. Whence come the clans, and who were their ancestresses? Among the ancient documents collected by Paiva Manso⁶ there is an account of pre-European history (confirmed by Cavazzi), attesting the general belief that the Meshicongo (Bakongo) were foreign conquerors coming from the interior, who had subjugated the native Ambundu. May not the present-day heads of clans be the descendants of the potential queen-mothers of the aboriginal clans married to Na Kongo or his sons? In Mayombe we find that the king of Loango is obliged to marry a princess of Ngoio after his coronation and to discard all his former wives.⁷ The chief of Ngoio is a representative of the original lords of the land, and as such a sacred chief (*mfumu mpa*, capped or crowned chief), head of a clan. Instead of being suffocated like other clan chiefs when his natural death appears to be imminent, he is killed on the night after his coronation.⁸ This may be the price at which the conquerors allowed him, to retain, nominally at any rate, the temporal, as well as the

¹ Van Wing, *Études Bakongo*, p. 118. Bentley, *Dictionnaire*, etc., p. 36.

² Van Wing, *Études Bakongo*, pp. 116 and 117.

³ *Ibid.*, p. 139.

⁴ Bittremieux, *Mayombesch Idioticon*, pp. 112 and 124.

⁵ *Ibid.*, pp. 110 and 112 *et seq.*

⁶ Vte. de Paiva Manso in *Boll. Acc. Sc. Lisbon*, 1877, p. 206.

⁷ Dennett, *Black Man's Mind*, p. 37. The King of Kakongo must marry a Solo princess.

⁸ *Ibid.*, p. 120.

spiritual power. Such marriages would have been of great political value as uniting in their offspring both the rights of the original owners of the soil and those of the conquerors. When the Bakongo spread inland across the Inkisi river, a similar process may have taken place, resulting in the formation of new clans without increasing the number of gens: it may be for this reason that we find there several clans linked to a single gens, forming part of the same tribe.¹ Apart from descent there is a great similarity between gens and clan. Both have praise, or strong, names (*ndambululu*, *kumba ki ngolo*), and clan² and tribal³ chiefs are enthroned with religious rites. I believe I shall be able to show that both have their initiation ceremonies.

One is naturally tempted to assume that in the remote past when they were equal in number, clans and tribes bearing the same name were endogamous. I have not succeeded in finding any positive proof for such a marriage custom. But there are signs that something like endogamy is achieved in an indirect way. Having two distinct lines of descent one would expect to find two forms of inheritance, as among the Ova-Herero, where inheritance of property is in the clan (*eanda*), and succession to chieftainship in the gens (*oturo*).⁴ Such a differentiation has never been noted among the Bakongo; on the contrary it seems to me that further investigation will show that succession, at any rate, may be tied to both matrilineal and patrilineal descent. Cross-cousin marriage is not only practised among them, but it is favoured as a union which produces fertility and strength.⁵ Whenever the successor of a deceased chief, temporal or spiritual, has to be designated, the elders unite, and discussions, lasting sometimes several days, take place to choose the right person; not only in Kongo, but in many other Bantu tribes.⁶ If the succession were purely matrilineal no difficulty could arise. Neither legitimacy nor primogeniture are considered⁷; there must be some other principle guiding the elders which has escaped us. I venture the theory (it is nothing more, though supported by circumstantial evidence) that an attempt is made to find a person who is of both the clan and gens of the original chief. In the first instance this can be achieved only in the second generation. The first successor of a chief will be his sister's son, who is of his clan (inherited from his mother) but not of his gens (which is that of the chief's sister's husband). The same will be the case with the new chief's sister. Should she, however, marry the first chief's son, her cross-cousin, a child of such a union will inherit from his mother the clan and from his father the gens of the first chief whose prospective heir he is. A chief

¹ Van Wing, *Etudes Bakongo*, p. 81 et seq.

² *Ibid.*, p. 142 et seq.

³ Bittremieux, *Mayombesch Idioticon*, p. 570.

⁴ Irle, *op. cit.*, p. 87.

⁵ Dennett, *Black Man's Mind*, p. 36. Van Wing, *Etudes Bakongo*, p. 191.

⁶ Van Wing, *Etudes Bakongo*, pp. 140 and 157. Torday and Joyce, *Kasai*, pp. 14 and 44. Schmitz, *Les Banyange*, p. 462; *Mayombe*, p. 415 (the two last in the Van Overbergh collection). (See also the wars of succession in Kongo under Affonso I and Affonso II.)

⁷ Dapper, *op. cit.*, pp. 353-4. Van Wing, *Etudes Bakongo*, p. 119.

like this might, like the noble chief of Mpangu in his praise-song, proclaim himself a whole man, *i.e.* a full-blooded Mpangu.¹

The division into gentes and clans is closely connected with the western Bantu conception of the dual soul. Every person has a spiritual soul (*mojo*), and a sensory soul, which is called *mfumu katu* (Van Wing), *lunzi* (Bittremieux), *mwanda* (Bentley), and various other names, all meaning exactly the same thing. The functions of the spiritual soul are to think and will, those of the sensory soul to perceive by the senses. The sensory soul can leave the body, as it does during sleep and fainting,² and return, while the departure of the *mojo* means death. The sensory soul resides in the head, but the spiritual permeates the blood, and is thus spread all over the body, though most of it is in the heart and liver. For this reason the spilling of blood is such a serious crime: it offends and curtails the victim's soul. For the same cause it plays such an important part in magic.³ The death of a Mukongo occurs in two stages: first he loses his senses by the departure of the sensory soul; now he is no longer a man, but he is not yet a corpse, because as long as red blood remains in him his soul is still in his inanimate body. The blood has to dry up before the soul can join the *bakulu* (ancestors),⁴ and it is to hasten this happy event that in many parts the corpse is dried over or beneath a fire.⁵

While the spiritual soul has become an *nkulu* and continues its life underground, what happens to the sensory soul? Our greatest authority on the Bakongo, Father Van Wing, says that his Bampangu could not tell him any more whither it went than whence it came.⁶ This means that the Bakongo whom he had specially studied do not know, or no longer know. We have then to look to some other part of the country for the solution, and we find it nearer to the capital in the region where Weeks and Bentley have made their observations. Weeks never understood, and consequently would never admit, the duality of the soul: *mojo* (the spiritual soul) meant simply life to him,⁷ and, consequently, he saw no reason to inquire about its fate after death. But both he and Mr. Bentley grasped that *mwanda* (the sensory soul) was something spirit-like, and they naturally asked questions about its final destination. They were told by some that it went to dwell in a great mysterious forest; others, however, asserted that it went to a land under the sea.⁸ Among the Bampangu, an inland tribe, there can be no question of the sea: but Father Van Wing was told about spirits, very powerful spirits indeed, who dwell in virgin forests

¹ Van Wing, *Etudes Bakongo*, p. 80.

² *Id.*, *Kimpasi*, p. 25.

³ *Ibid.*, p. 22 *et seq.*

⁴ Van Wing, *Etudes Bakongo*, p. 276 *note*.

⁵ *Ibid.*, p. 278. Monteiro, *Angola*, vol. i. p. 274. Preyart also mentions the matter.

⁶ Van Wing, *Kimpasi*, p. 25.

⁷ *Among the Primitive Bakongo*, p. 283. Bentley, however, makes a distinction between soul and spirit (see his *Dictionary, etc.*, under "soul").

⁸ Bentley, *Dictionary, etc.*, p. 593. Weeks, *Bakongo*, p. 278.

near or in the rivers.¹ These are the *nkita* (or *bakita*), spirits of men who have died a violent death; the greatest among them are those of heroes fallen in war, the ancestors from the beginning, the first progenitors (*de voorouders van 't begin, de oorvaders*).² probably the conquerors of old who had led the tribe to its present home. *Nkita* (*Bakita*) is a personal form of *Kita* (*bita*) (shade).³ According to Bakongo notions, the perceptible counterpart of the sensory soul is the shadow, just as the name is linked with the spiritual soul.⁴ If we put these statements together, can there be any doubt that we have to deal with a second kind of ancestors, corresponding to the second soul? The *moyo* (which I propose to call the "maternal soul") goes to the *bakulu* (clan ancestors) underground, while the *mfumu kutu* (the "paternal soul") joins the *nkita* (gens ancestors) under or near the water. Before one is certain that the *nkita* are of the same rank as the *bakulu* ancestors, it is necessary to show that they are made the object of some form of worship, distinct from the share they may have in the libations on graves. There can be no doubt that this happens, though it has been observed in certain parts of the country only. The Bakongo chiefs in the north-eastern section of the kingdom retire before their enthronement with their principal wife to the forest for some weeks, and there perform rites and dances before the *binkita* ancestral relics, consisting of teeth and hair.⁵ Father Van Wing puts the word "*binkita*" in inverted commas and offers no translation; it is obviously the plural of "*kinkita*." "*Ki*" is a prefix denoting that the thing pertains to the noun that follows. The meaning is "*relics of nkita*"; thus the *nkita* and *bakulu* are put on the same footing. There remains, however, the clan initiation to which an equivalent has not yet been mentioned. It exists, however, in *Kimpasi* or *Ndembo*, of which Cavazzi had already heard, but which has been hitherto considered a secret sect. It corresponds in so many ways to *Longo*, the clan initiation, that it is impossible to conceive that it should have a different character. The habitation of the neophytes in both is called "*vuela*"⁶ or "*vela*"; both take place in secreted enclosures which are burnt after the ceremony is over.⁷ As in the house of the ancestors, a fire is kept alive in both which must on no account be allowed to go out.⁸ In both it is, if not necessary, at any rate desirable, that an albino should be present, these "white lords" being considered reincarnations of ancient chiefs.⁹ In both taboos are inflicted and secrecy enjoined.¹⁰

¹ Van Wing, *Kimpasi*, pp. 44 and 93.

² *Ibid.*, p. 38.

³ Bentley, *Dictionary, etc.*, Appendix, p. 849.

⁴ Van Wing, *Kimpasi*, pp. 26 and 28.

⁵ *Ibid.*, p. 105.

⁶ Van Wing, in *Congo*, 1920, vol. ii, p. 236. Weeks, *Bakongo*, pp. 160 and 172.

⁷ Van Wing, in *Congo*, 1921, vol. i, p. 370.

⁸ *Ibid.*, 1921, vol. i, p. 58. *Etudes Bakongo*, p. 146.

⁹ Van Wing, *Etudes Bakongo*, p. 147. Weeks, *Bakongo*, p. 159.

¹⁰ *Ibid.*, p. 123. *Ibid.*, p. 245.

And, as for the Bantu the name is not a mere sound and outward sign, but the integral part of his personality; in both a change in the status, such as admission to the clan and the gens, requires that a new one should be assumed.¹

"*Longo*" is a word used for "taboo," and "*Nzo longo*" may thus mean the "tabooed house." But I am convinced that Father Van Wing is right in accepting the other meaning of *longo*, "legitimate wedlock," in this connection. *Longo* is one of those rites which one finds so frequently in connection with changes in the mood of the individual's life: it is, however, not a puberty rite as generally believed, but one preparatory to parenthood as one might expect from its name: for the African the principal reason for marriage is the begetting of children. Marriage itself does not bar a man from admittance to *Nzo longo*, but any man who has begotten a child can no longer be initiated;² and among the Bavili, a girl who conceives before passing through the painting-house (the survival of former female clan initiation) is severely punished,³ or has to undergo special rites and is called "*kumbi* of *Mbumba Luanyu*," bride of the principal *nkisi* of initiation.⁴ The real puberty rites are connected with *Kimpasi*, and *Longo* and *Kimpasi* are the principal *rites de passage* in a western Bantu's life. The *Longo* initiation is separate for boys and girls; in the course of it the former are circumcized, while the latter have some slight operation performed on them; in *Kimpasi* both sexes are initiated together.

Kimpasi, or *Ndembo*, is neither a guild, nor secret society, nor sect. Father Van Wing, in his learned exposition of the subject tentatively points himself in that direction.⁵ Internal evidence leaves no doubt that it is a puberty rite connected with the absorption of youths and maidens in the totem, and their incorporation into the gens (tribe) to which their *nkita* ancestry calls them. It is believed that by union with the original ancestors of the nation or tribe they will acquire some of their virile powers, and thus succeed in producing the riches valued by them above all—"human riches," i.e. children. The ceremony takes place in an enclosure, called in ordinary language "*nzo lufuba*," but spoken of by the initiates as the "*nkita* village" or "*our Kongo*."⁶ The principal officiating priest is called for the occasion *Na Kongo* (Lord Kongo).⁷ The enclosure must be in the forest near water, as it is in such places that the *nkita* ancestors dwell.⁸ When several gentes are initiated at the same time, a separate hut is reserved for each, and some distinction is made between children of pure descent and such as have the blood of slaves in them.⁹ Should the initiation be delayed, barrenness of women and other misfortunes will remind the villagers of their duties to the *nkita*.¹⁰ Young people of both sexes are admitted; they are supposed to die the *nkita* death, travel to *nkita* life, and, finally, after resurrection, return to their homes

¹ Van Wing, *Kimpasi*, p. 28.

² *Id.*, in *Congo*, 1920, vol. ii, p. 234.

³ Dennett, *Black Man's Mind*, p. 51.

⁴ Bittremieux, *op. cit.*, p. 293.

⁵ Van Wing, *Kimpasi*, p. 78.

⁶ *Ibid.*, pp. 15 and 16.

⁷ *Ibid.*, p. 17.

⁸ *Ibid.*, p. 14.

⁹ *Ibid.*, pp. 15 and 69.

¹⁰ *Ibid.*, p. 12.

as new-born *nkita* children.¹ Ordinary death implies the loss of both souls, and is final; *nkita* death means the gradual merging of the individual paternal soul into that of the tribe and totem. The verb used by Father Van Wing's informants to describe the journey of the soul to its new sphere is "*fatumuka*"² (*i.e.* to ascend); had they wished to express a change they would have said "*vilula*." With the *nkita* death the sensory soul leaves the candidate, and, while it ascends, he (or she) must pretend to be insensible to the ill-treatment to which the neophytes are ungrudgingly subjected.³ The boys and girls are laid out naked in pairs, "but must not know each other, even as if they were palms."⁴ This appears to be symbolical of their loss of the senses, especially if taken in connection with the sexual excesses, such as coitus, masturbation and pederasty, which are practised⁵ after the recovery of, or reunion with, a special powerful "ripened" sensory soul. Every individual's soul is a fraction of the undivided tribal soul, as every tribal soul is an integral part of the Kongo soul—hence the saying that the novices "go to Kongo, our Kongo." There appears to be some affinity between the proto-elements and the two souls: *Mbumba* attracts the maternal, *Kalunga* the paternal, soul. Thus we find that at the clan initiation *Mbumba* is the presiding genius, while in *Kimpasi* it is *Kalunga*, represented by "*Kalunga's* stone,"⁶ who forms the pivot round which the ceremonies turn. *Kalunga's* stone is surrounded by objects which come either out of the water or are derived from aquatic plants,⁷ while the central piece of the *Longo* rite is a mushroom-shaped termite-nest, *i.e.* soil fetched up from the depth of the earth.⁸ The departed maternal souls (*bakulu*) dwell in the bowels of the earth, while the paternal souls go after death as *nkita* under the sea or haunt the rivers. This proximity to earth and water apparently gives the ancestors some influence over the elements, and it is for this reason that they are approached with prayers in case of famine, drought, and other calamities due to them.

¹ Van Wing, *Kimpasi*, p. 42.

² *Ibid.*, p. 62.

³ *Ibid.*, p. 53.

⁴ *Ibid.*, p. 54 *et seq.*

⁵ *Ibid.*, p. 77. Bentley, *Dictionary, etc.*, p. 507. Weeks, *Bakongo*, p. 163.

⁶ *Ibid.*, p. 43. In a ceremony which appears to be a degenerate form of, or a supplementary rite to, *Kimpasi*, the stone used is described as "a pillar of rock," like a man without arms and head (Bittremieux, *op. cit.*, p. 595 *et seq.*). The *Kalunga* "fetish" (*see* Colle, *Les Baluba*, Van Overbergh collection, p. 435) of the Baluba consists of an erect tree-trunk with faces looking in opposite directions at the summit. The protruding chins of the faces increase the resemblance to a phallus. Phalli of clay moulded on wooden cores were observed among the Bayanzi in the Kwilu region (*see* Torday and Joyce, *Journ. Roy. Anthropol. Inst.*, vol. xxxvii, p. 141). In *Kimpasi*, the fruit of *Amomum albo-violaceum* serves, in consequence of its shape, as the emblem of *pad-viri* (*see* Van Wing, *Kimpasi*, p. 75).

⁷ Van Wing, *Kimpasi*, p. 44.

⁸ *Id.* in *Congo*, 1920, vol. ii, p. 48.

The linking of the souls with the creative elements is common far beyond the confines of the western Bantu. The Baluba believe that the genius presiding over the world of the departed is *Kalunga Ndembo*,¹ and *Ndembo* is one of the words used by the Bakongo for the place where the living unite with the souls of the dead. The resemblance of the word *Mulungu*, so widely used among the eastern Bantu, with the Bakongo word *Muluango* may be a pure coincidence: but it is at any rate worth noting that the Yao, like the Kongo people, use it *occasionally* for the rainbow too.² Dr. Stannus considers³ that *Mulungu* is more like a place where spirits dwell than a personality, and according to Duff MacDonald,⁴ it is a spirit consisting of all the departed spirits added together. Like *Kalunga*, the *Mulungu* of the Yao is the rain-giver, and the Akamba believe that he dwells in the clouds or in the sea.⁵ Mr. Lindblom is of opinion that *Mulungu*'s name is identical with *Mumbi*, a word derived, according to him, from the root *umba*, to shape like a pot,⁶ i.e. the same as that of *Mbumba*. But there is good reason to believe that this is a case of mistaking identity of functions for identity of personality, for one of his informants clearly indicated to Mr. Lindblom duality in the creative principle.⁷ It seems quite possible that the Kiyombe name of *Mbumba Luanga*, by combining the names of the proto-elements, tries to express their union which, as the rainbow, stands for the symbol of creation.

I cannot end this paper without expressing my indebtedness to my friends, Father Van Wing, Captain Rattray, and the Rev. Edwin W. Smith, for the great help I have derived from their books, and, perhaps even more, from their conversation. This does, of course, not imply that they share my views.

¹ R. P. Colle, *op. cit.*, p. 447 *et seq.*

² Duff MacDonald, *Africana*, vol. i, p. 67.

³ "The Wayao in Nyasaland," in *Harvard African Studies*, vol. iii, p. 312.

⁴ *Op. cit.*, vol. i, p. 66.

⁵ Gerhard Lindblom, *The Akamba*, pp. 247 and 251.

⁶ *Ibid.*, p. 244.

⁷ *Ibid.*, p. 251.

FURTHER NOTE ON BIRD-CHARIOTS IN EUROPE AND CHINA.

[WITH PLATES XX-XXIII.]

By C. G. SELIGMAN.

IN a previous communication entitled "Bird-chariots and Socketed Celts in Europe and China,"¹ I put forward the suggestion that the Chinese "dove-chariots" were not truly Chinese in origin but were derived from the bird-chariots of the European Bronze Age, and pointed out that the occurrence in China of socketed celts at least as old as the Chow Dynasty constituted definite evidence of a cultural drift from Central Europe to China, which might well have carried with it the idea of the bird-on-wheels.

When that paper was written I accepted Bushell's statement that the dove-chariot was intended "to circulate on the altar during the performance of ancestral ritual ceremonies," as based on experience or reliable information, *i.e.* that specimens actually in existence or represented in Chinese catalogues were religious in function. Although, as the present note will indicate, this view is incorrect, I still hold that the Chinese bird-chariots are most probably derived from European examples of Bronze Age, though present information suggests that the latter or their derivatives had come to be regarded as toys by the time they reached the Far East.

As Mr. Arthur Waley has pointed out to me, the purpose of the dove-chariot at the present day is decided beyond doubt by the opinion held in the 18th century, recorded in a sentence in the *Hsi ch'ing ku chien* (Ch'ien Lung Catalogue), XI, 29 *verso*: "These and previous two vessels, all toy-things, yes! from ritual vessels independent-different," *i.e.* these and two previously mentioned vessels, both "dove-vases," but not on wheels, are merely playthings, entirely distinct from ritual vessels, and this view is borne out or may have originated in the information given in the Chinese *Sau ts'ai t'u hui*, compiled by Wang Ch'i in the 16th century. For the following translation from a Japanese version published in 1713, I am indebted to Mr. Yetts, who tells me that the bird-chariot occurs there among the toys and games, the description coming between that of a bamboo horse (hobby horse) and a kite. The *Sau ts'ai t'u hui* is quoted as follows:—

" . . . The dove chariot is $2\frac{2}{10}$ inches high, $3\frac{2}{10}$ inches long, and 1 $\frac{1}{2}$ inches wide. Diameter of wheels is $2\frac{2}{10}$ inches: weight, 10 oz. The figure of a turtle-dove is between the two wheels, and moves when propelled. On its back is a chick. There is a ring in front through which a string may be threaded, and it is probably used for the attachment of a string. It serves as a toy for children.

¹ *Journ. Roy. Anthropol. Inst.*, vol. L, 1920, pp. 153-58.

There is a saying that the child of five delights in the dove-chariot, one of seven in the bamboo horse."

The purpose of the bird-chariot in China during the last 1500 years being settled, it remains to consider its distribution on Eastern Asia and the modifications that this particular form of the bird *motif* has undergone. It is also interesting to determine how far the forms figured in the Japanese *Chin shih so* (modern) and the Chinese *Po ku t'u lu* (first edition *circa* 1125) really present actual specimens existing or remembered at the time of the publication of the earlier of these works, bearing in mind a warning by a well-known sinologist of the unwisdom of placing reliance on the pictures in either. As I shall immediately show, these two compilations are remarkably reliable, but the *Ku yu t'u p'u*, "The Illustrated Book of Ancient Jades" (compiled in the 12th century and published in the 18th) is of quite other character, and I therefore disregard the white nephrite bird-chariot reproduced from this work by Laufer in his paper, "The Bird Chariot in China and Europe."¹ Even a cursory examination of the *Ku yu t'u p'u*, such as owing to the kindness of Mr. Yetts I have been able to make will, I think, convince the student that many of the illustrations are fanciful reconstructions from literary sources. The amazing results that can be achieved by such modes of reconstruction can perhaps be best appreciated by considering the "camel-bird" (ostrich), well known in the T'ang period but reconstructed from literary sources in the 18th century, as demonstrated by Laufer in his work on Funerary Figures.² With this "literary" jade bird should probably be placed an aberrant bronze example of the bird-chariot, to which Mr. Yetts has drawn my attention. This is figured in the *Ying shou ch'uan ku* (XLV, 25), a work long in MS. form and published in 1913 by photolithography. As is obvious from the drawing (Text-fig. 1) it is a strangely composite creation and perhaps represents a part—possibly the cover of a vessel—of its object of origin. Nor is the accompanying text of assistance, since, as Mr. Yetts points out, it merely states that the object is a Han bird-carriage and gives the dimensions (about 7 cm. long and 6 cm. high).

To return to the question of the authenticity of the figures in the *Po ku t'u lu* and *Chin shih so*. Since my former paper was published two examples of dove-chariots have been brought to this country. These two specimens, both attributed to the T'ang period and belonging respectively to Mr. Eumorfopoulos and to Mrs. Carl Holmes (the latter formerly in the possession of Messrs. Yamanaka), closely resemble the figures in the Chinese and Japanese volumes, the only essential

¹ This paper, to which I was able to make only a short allusion in the postscript to my previous communication, will be found in the *Boas Anniversary Volume* (New York, 1906), and contains all the information concerning Chinese bird-chariots available at the date at which it was written.

² *Chinese Clay Figures*, (Chicago, 1914).

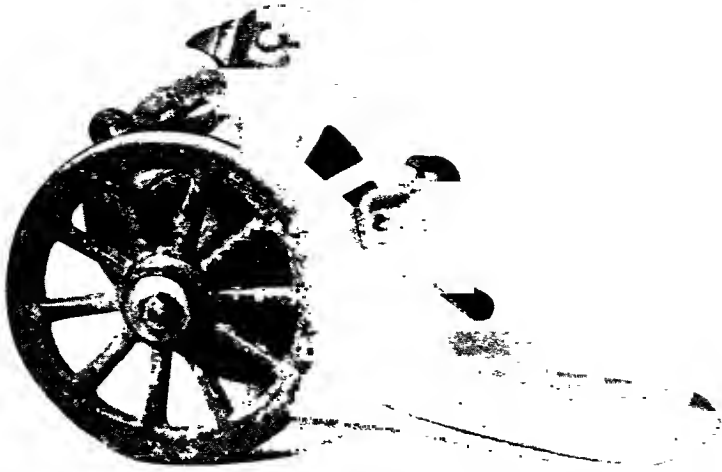


FIG. 1.—BIRD-CHARIOT. BRONZE : T'ANG : LENGTH ABOUT 11 CM. : EUMORFOPOULOS COLLECTION.

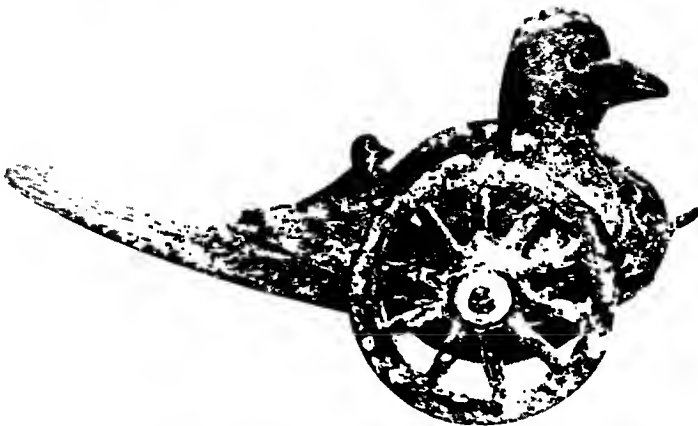


FIG. 2.—BIRD-CHARIOT. BRONZE : T'ANG : LENGTH ABOUT 12.5 CM. : MRS. CARL HOLMES.

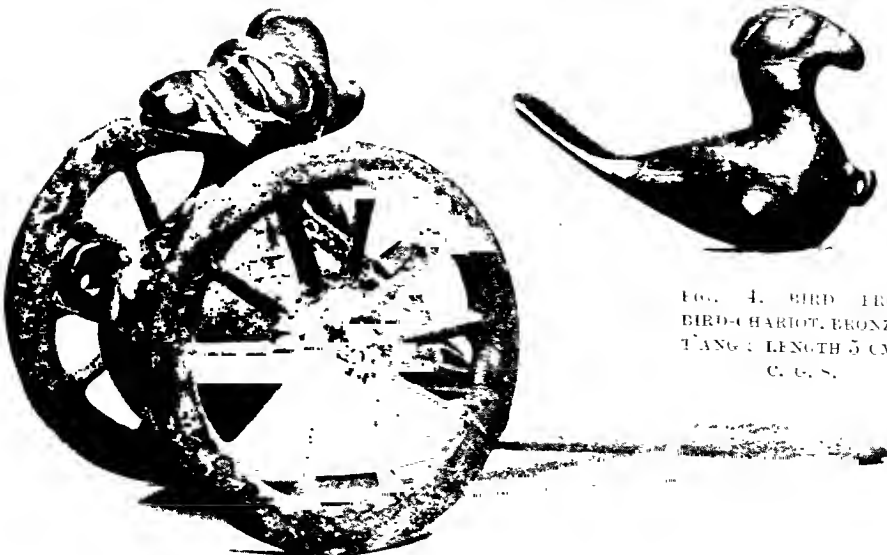


FIG. 4. BIRD FROM
BIRD-CHARIOT. BRONZE ;
T'ANG : LENGTH 5 CM. ;
C. G. S.

FIG. 3.—BIRD-CHARIOT, BRONZE : 3RD-4TH CENTURY A.D. : LENGTH ABOUT 14 CM. : M. VIGNIER.
(Measures are approximate. Perhaps correct to half a centimetre.)

FURTHER NOTE ON BIRD-CHARIOTS IN EUROPE AND CHINA.

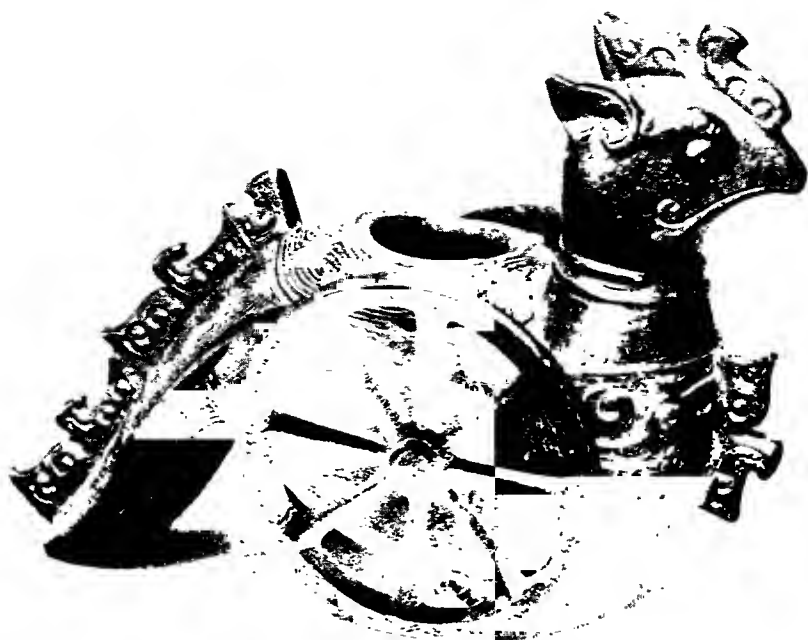


FIG. 1.—BIRD-CHARIOT, BRONZE: MODERN: LENGTH 15 CM., C.G.S.



FIG. 2.—PHOENIX, BRONZE: HAN: HEIGHT ABOUT 14.5 CM.: EUMORFOPOLIS COLLECTION.
(Measures are approximate—Perhaps correct to half a centimetre.)

FURTHER NOTE ON BIRD-CHARIOTS IN EUROPE AND CHINA.



FIG. 2. BIRD CHARIOT, MAMMOTH BONE; MODERN YAKUT; DR. STERNBERG.

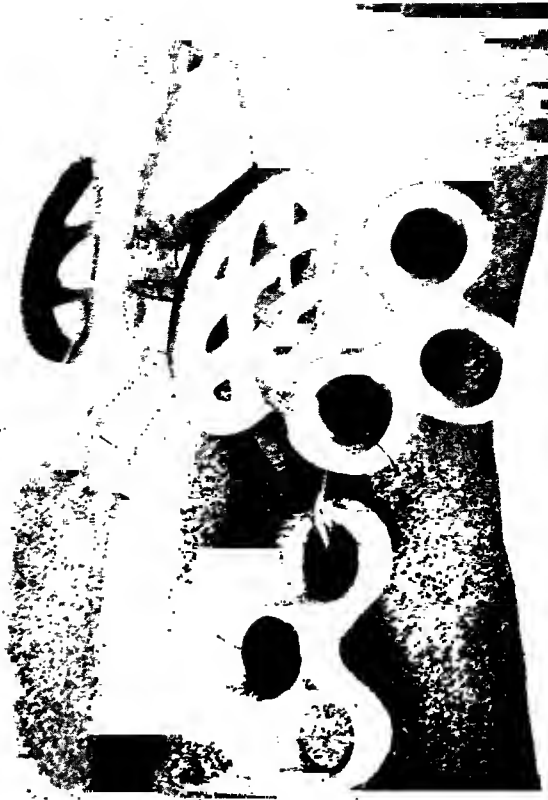


FIG. 3. DETAILED VIEW OF THE BIRD-CHARIOT IN FIG. 1.

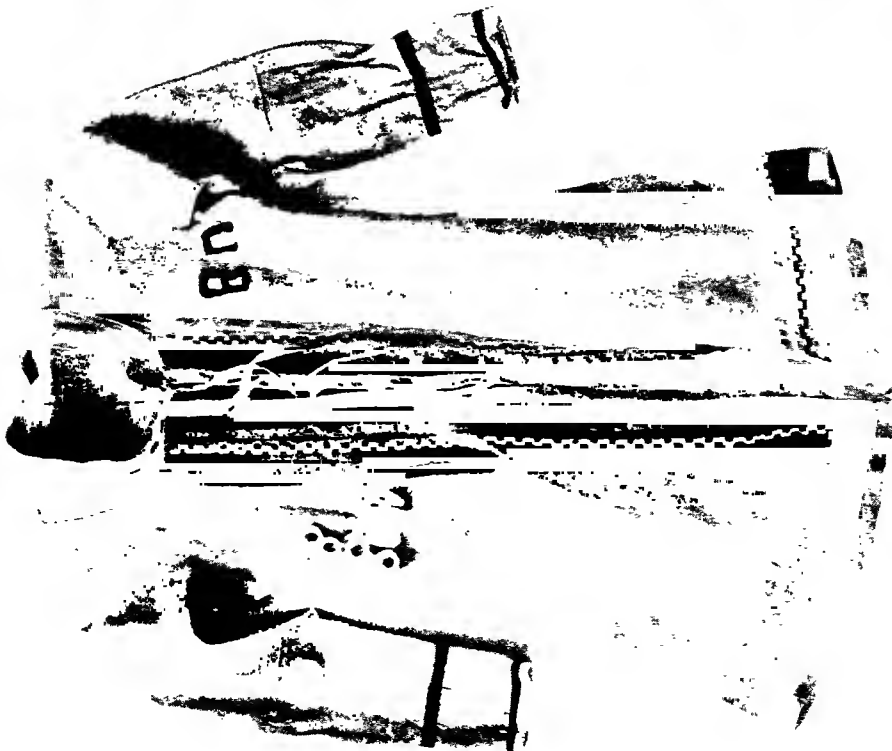


FIG. 4. COAT WITH BIRD-CHARIOT ATTACHED; MODERN YAKUT, DR. STERNBERG.



FIG. 1. — BIRD-CHARIOT, WOOD: MODERN: LENGTH 33 CM.: JAPANESE: BERLIN MUSEUM.



FIG. 2. — BRONZE INLAID WITH SILVER IN FORM OF ANIMAL (*tsubaki-uma*): SING.: LENGTH 15 CM.: C.G.S.
(Measures are approximate. Perhaps correct to half a centimetre.)

FURTHER NOTE ON BIRD-CHARIOTS IN EUROPE AND CHINA.

in which they differ being one of practical, but of no æsthetic or stylistic, importance, namely, the presence in both at about the middle of the breast of a small bronze loop, obviously for no other purpose than for the attachment of a length of string by which they might be pulled about. The actual specimens reproduced on Pl. XX thus support the toy quality attributed to them in the Ch'ien Lung Catalogue, and this is confirmed by the remains of a much smaller bird-chariot, possibly of T'ang age, in my own possession. The wheels have disappeared, but on its right side the bird still shows the trunnion that once took the hub of the wheel, and there is the usual loop at the breast, but no accessory dorsal bird (Pl. XX, Fig. 4). In all these specimens the loop appears to take the place of the young, or accessory, bird, common on the breast of the parent bird, but where the loop does not occur the accessory bird may be represented by a scrolled ridge in the

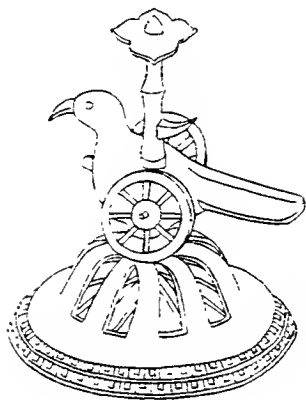


FIG. 1.

appropriate position on the parent bird's breast, as in a late dove-chariot (Pl. XXI, Fig. 1) or by a "medallion" in low relief, as in the modern example figured by Laufer¹ with a miniature *ts'un* vase on its back. Thus, apart from the loop, and even when the dove is divorced from its wheels and has undergone a metamorphosis into some other species of bird, as *e.g.* the Phoenix with crest and expanded tail in the Eumorfopoulos Collection, attributed to the Han Dynasty (reproduced as Fig. 2 of Pl. XXI), the diminutive bird attached to the breast, or something representing this, may still bear witness to the origin of the design from the bird of the dove-chariot. This interesting specimen also suggests that the accessory birds are to be regarded as the young of the larger bird, since here the latter holds in its beak a seed or similar object, while in a dove-chariot of T'ang age figured by Laufer (*op. cit.*, fig. 24, and reproduced here as Text-fig. 2), the beaks of the main bird and of the accessory bird on its breast are in apposition, tip to tip. This specimen is also peculiar in having three accessory birds in place of the usual two. It should further be noted

¹ *Op. cit.*, pl. XXXIII.

that with regard to the two old Chinese figures reproduced in fig. 5 of my earlier paper both, according to Laufer, who quotes Wang Fu, the author of the *Po ku t'u lu*, are provided in the front part with a perforation for the passage of a cord. Actually, no signs of this are visible in either figures, though one has a loop projecting from the under part of the tail by which it might be dragged backwards. I shall return to this point later, meanwhile it is worth noting that according to the *Po ku t'u lu*, cited by Laufer, the date of the upper specimens of my figure (fig. 5) is Han (202 B.C.—A.D. 221), that of the lower six dynasties (A.D. 221–589). The latter date is particularly interesting since while writing this paper I received from M. Charles Vignier the photograph of a specimen in his possession which is reproduced on Pl. XX, Fig. 3, and which, on purely archaeological grounds, he attributes to about the 4th century A.D. In this example there is a loop at the breast as in the other early existing specimens, but the dorsal accessory bird has been broken away, leaving only a rough stump as evidence of its former existence.

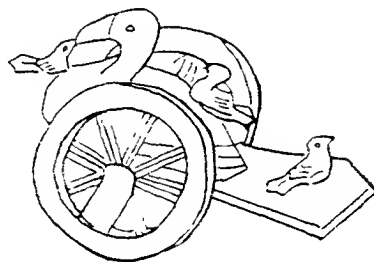


FIG. 2.

So far I have dealt only with bronze representations, neglecting the jade example in the *Ku yu t'u p'u* for the reasons already stated. But I may here allude to a jade in the collection of Mrs. Carl Holmes which, if of no great age, appears to be older than the 18th century, and might perhaps be regarded as representing the last stage of the bird-chariot with young. The wheels have disappeared, but attached to the bird are a number of chicks; the whole is stylized, but from the irregular position of the young it is obvious that when executing it the artist had in mind the conception of a bird with its young (as a hen with chicks) rather than the bird of the bird-chariot.

So much for the archæological side of the subject: there is, however, another aspect worthy of consideration, viz., the distribution of the bird-on-wheels (and other animals on wheels) as toys in Siberia and the Far East. Dr. Haddon has drawn my attention to a record by the late Dr. E. S. Morse of the bird-on-wheels, in wood, as a toy among the Ainu.¹ Text-fig. 3A is a copy of the sketch of the Ainu toy with which Dr. Morse illustrates his paper, in which he also refers to and

¹ A curious Ainu toy. *Bulletin of the Essex Institute* Salem, 1893.

figures a specimen in the Berlin Museum. Dr. Morse's description of the Ainu toy is as follows:—

"The body of the bird has a uniform thickness of 30 mm., apparently as if it had been cut out of a board or plank. The head and neck only were roughly modelled, tapering from the base of the neck, which was 18 mm. in thickness, to half that thickness at the end of the bill. The extreme length of the toy was 195 mm. The back and sides of the body had a series of curved lines cut upon their surfaces to represent feathers, an area (indicated by the dotted lines in the figure) hidden by the wheels being left plain. There was no hole or constriction in the neck to which a string might be attached for the purpose of dragging the toy: in the tail,

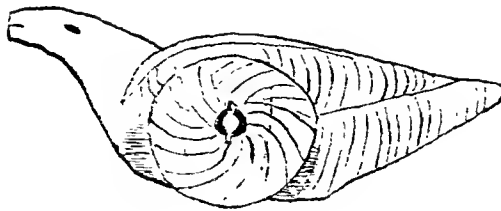


FIG. 3A.

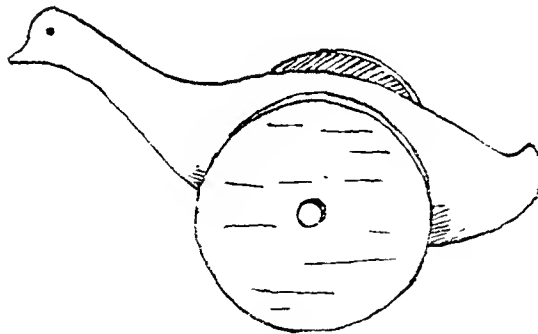


FIG. 3B.

however, was a small hole running through from above, evidently for this purpose. In this case, the toy must have been dragged backwards. The wheels were thick and clumsy, and irregularly ovate rather than circular. This form of the wheel would cause the bird to hop up and down when being dragged. The axle holding the wheels passed through the body, near the centre, and consisted of a simple wooden pin having a thick head at one end and a perforation at the opposite end into which a small pin could be inserted."

Dr. Morse expresses the opinion that the toy bears all the appearance of having been made by the Ainu, and that its rough make, the manner of cutting its decorative lines, and its clumsy wheels, all preclude its having been made by the Japanese

(in this he is probably incorrect): he points out that the idea of wheels, so foreign to savagery, must have been derivative, but states that he could not remember seeing anything like it among Japanese toys. It has not been possible to trace his Berlin specimen, reproduced here as Text-fig. 3B, but enquiries, kindly undertaken for me by Professor Schachtzabel, of the Museum für Völkerkunde, have brought to light in the Museum Collection (No. I.D. 12973) the specimen figured on Pl. XXIII. It is 33 cm. in length, and of Ainu origin. Another "chariot" coming from Japan, in the possession of Professor Lessing, of Berlin, though obviously belonging to this series and vaguely zoomorphic, does not represent a bird.

Knowledge of the two specimens figured by Morse led me to discuss the matter with the late Dr. L. Sternberg, with the result that shortly before his death he sent me photographs and sketches of a number of the animal-chariots of the Palæasiatic tribes of Eastern Siberia. These include a "seal-chariot" toy (Text-fig. 4) from the Chukchi, a Yakut bird-chariot toy, of unusual type since the wheeled bird leads a procession of birds carved from a single piece of bone (Pl. XXII, Fig. 2), and a

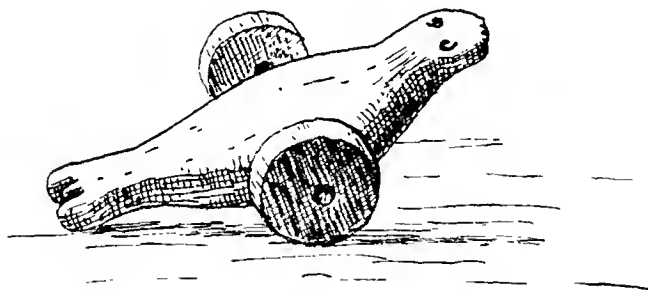


FIG. 4.

bird-chariot from the Lamut (Pl. XXII, Fig. 3). The first two are described as being carved from mammoth bone: there is no description of the material from which the last is made, and it appears to have been painted in part. Like the Amu toy of Dr. Morse and the specimen recorded by Wang Fu, its tail is bored as though to take a piece of string, and it may be presumed that it was primarily intended for a toy. But even so, its owner—perhaps only its last owner—appears to have regarded it as an amulet, for it is sewn to a coat, as is shown in Pl. XXII, Fig. 1.

It seems, then, that the bird-chariot is, or has been, a widely distributed toy in the Far East, ranging from early mediæval times in China to the present day in Siberia, China, and Japan. And though the existence in bronze of the finely worked Chinese specimens may appear at first sight to militate against these being regarded as toys, this is really no more remarkable than the existence in modern times of expensive mechanical playthings or elaborately fitted dolls' houses alongside cheap wooden toys. Another interesting point arises: it will be noted that the bird-

chariots of Japan and the bird- and animal-chariots of the tribes of Siberia differ from the older Chinese examples in that they show no trace of subsidiary birds on back or breast. If I am right in regarding these subsidiary birds as an essential characteristic of the original Chinese bird-chariot derived from a European Bronze Age prototype, then the lack of the accessory birds in modern examples in Japan and Siberia may be explained by regarding these latter as derivatives which came into being at a period when the accessory birds had been forgotten, or had at least become misshaped or misunderstood, as in such modern examples as those reproduced in this communication (Pl. XXI, Fig. 1) and by Laufer in the plate accompanying his paper. Further, the distribution of the modern specimens affords an interesting example of culture contact between Siberia and Japan, a subject which preliminary studies suggest might be followed up by a consideration of the arrow-heads, practical and ceremonial, of the two areas. Thus there are a whole group of bifid arrow-heads from Northern Siberia in the British Museum (Series 1913, 11-14), while B. Adler (*Int. Arch. Ethn.*, vol. xiv, 1901, suppl.) has to a considerable extent described their distribution on the mainland. None of the modern Japanese arrows that I have been able to examine are of this form, but I have in my possession a ceremonial arrow-head, too large to use but beautifully made, which is of this type. Mr. C. T. Currelly, who gave me the specimen, stated that when a specially good sword was made the remains of the metal was worked up into a ceremonial arrow-head and placed in a shrine, I presume, in the household of the warrior for whom the weapon was made. Moreover, bifid arrow-heads are figured in the *Shin shih so* and in the *Institutes of the Ch'ing Dynasty*.

There is an interesting pendant to the problem presented by the bird-chariot if—as seems necessary—it be admitted that the presence of a small bird on the back of the larger bird be a characteristic feature of the early examples. On many Chinese bronzes of animal form there is an opening in the back, and the cover, whether hinged or merely made to fit, is zoomorphic, sometimes representing a bird, or more often a monstrous or gryphon-like creature. As an example may be cited the bronze inlaid with silver, presumably of Sung date, reproduced in Pl. XXIII, Fig. 2. It may be suggested, and I put forward the idea for further investigation, that such diminutive but often lively representations of birds or monsters on the backs of animals have their origin in the accessory dorsal bird of the bird-chariot.

CONCLUSIONS.

(1) Actual specimens brought to Europe during the last few years indicate that at least some of the figures in classical Chinese catalogues are approximately faithful representations of Chinese bird-chariots only a few hundred years older than the catalogues.

(2) The mediæval bird-chariots were not used for religious ceremonies (as stated by Bushell), but were playthings.

(3) Bone and wooden bird-chariots, without the accessory birds so characteristic of mediæval Chinese examples, occur at the present day among the Ainu and the palæasiatic tribes of Siberia.

It remains my pleasant duty to acknowledge the help of those who have assisted me with photographs, or with information and advice. The former include Mr. Eumorfopoulos, Professor Schachtzabel, Messrs. Yamanaka, and M. Vignier: the latter, Mr. Arthur Waley, Mr. W. Percival Yetts, and Mrs. Carl Holmes: to all these my best thanks are due.

INSTALLATION OF AN ATTAH OF IDAH (NIGERIA).

By R. S. SETON.

INTRODUCTION. (By H. R. PALMER, C.M.G.)¹

THE subjoined notes, by the District Officer of the Idah Division of the Kabba Province of Nigeria, Mr. R. S. Seton, deal with certain rites and ceremonies incident to the death of an Attah (paramount chief) and the installation of a successor.

The town and district of Idah lie on the left bank of the lower Niger, south of Lokoja and north of Onitcha. At the close of the eighteenth century, the Idah kingdom was one of considerable importance, and the dominions of its rulers (the Attahs) extended as far north as the Benue and as far east as the present Eastern Railway of Nigeria. To the south and west their authority shaded off into that of the Obas of Benin, the Yoruba kings, and the Etsus of Nupe, respectively.

The Idah kingdom, however, first arose at least one, and possibly two, centuries before the date, *i.e.* between A.D. 1600-1700, or even earlier, from some tribe of Yoruba-speaking affinity, who settled on the left bank of the Niger opposite the Yoruba country, and set up some kind of a state.

At this stage, the paramount chief of the community was called the Ashadu, a title which is still found among some of the Yoruba or semi-Yoruba communities on the right bank of the Niger in the neighbourhood of Lokoja, as well as being that of the king-maker at Idah.

There exists a large amount of tradition and folk-lore connected with this early period of Idah's existence, but so far it has proved difficult to define precisely the stratum to which its governing classes belonged, more than to suppose that they represented the more easterly influence of the kingdoms of Ife (Yoruba) and Benin.

At a date, however, which is not quite certain, but was probably about A.D. 1700-1750, a member of the Kworarafa or Jukun dynasty, whose capital was at that time Bepi (known as Birni Kworarafa), east of the present Wukari, came west with a following of Jukuns, and, after some fighting with the then rulers of Idah, established himself as ruler of the kingdom of Idah, and took the title of "Attah"—a title which means "father," and is thus the same word as the Nupe word for "father" (*ada*), which again is the same as that in use among the southern Tuwareg in the Sahara.

¹ [I am much indebted to Mr. Palmer for kindly reading through the MS. of this paper, and for contributing this Introduction to it.—ED.]

The ruling caste which resulted from this fusion of Jukuns into the pre-existing ruling class adopted as their court language the Yoruba dialect, which was presumably the language of the latter. This language is now known as Igara or Igula—a term which is also applied to the people who speak it in contradistinction to the peoples subject to them, who in general speak dialects called Idoma.

By blood, therefore, and to a large extent by culture also, the Attahs of Idah belong to the Kworarafa ruling castes who, in the sixteenth and seventeenth centuries, dominated the eastern portion of the present Nigeria, and were themselves of cognate origin with the early rulers of Kanem, or were originally Hamites or Tuwareg of the Eastern Sudan and Sahara.

Apart from the numerous points in the existing Jukun culture and religion, which suggest the influence of the Nile valley and ancient Egypt, the Attahs of Idah are still buried in a "funeral boat," a custom which in Bornu has survived even among the Muslim Kanembu, whose Sheke (Sheikh) is still carried to burial in a "boat."

In the case of Idah, it is—as will be seen—very difficult to disentangle what may come from the Jukun and Eastern Hamites from what may come from Yoruba and Benin: and that again is not rendered easier by the fact that the beginning of Yoruba or Benin culture itself most probably lay in the upper Niger and Southern Sahara, among Hamites who were not very dissimilar from those further east from whom sprung the Kanuri of Bornu and the Kworarafa of Bepi and the Attahs of Idah.

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Introduction.

THE information in these notes has been obtained from the actual participators in the ceremonies, including the Attah and Ashadu. Though the report is not a long one, there is much in it that needs more inquiry and explanation than I have been able to give, and I should like to have had the opportunity of checking the meaning of the words more fully. Further, there are many stories current among the Ibo and Igbirra that would assist in clearing up obscure points and confirming those that are correct.

The drawings of the clothes and ornaments had to be made up from very hurried sketches made by me while the various items were shown to me in great secrecy by the Attah himself, with only one other person and my Political Agent present (Figs. 1-18, pp. 274-7). I must apologize for their roughness, as I have not had time to work them up more carefully nor to do the copies myself.

Concealment of an Attah's Death.

When an Attah dies, his death is supposed to be kept secret from the people for a whole year. None of the people interviewed professed to know the reason for this, though there probably is one. The only reason suggested by Mallam Gana, the Court Scribe, is that it was to allow time for the late Attah's relatives to collect the money and slaves necessary for the funeral ceremonies, and for the next heir to do the same for the installation ceremonies.

Continuation of Administration.

The general work of the Administration proceeds as though the Attah were still alive.

The following title-holders¹ assemble at Ogwede (that part of Idah where the Attah lives) for this purpose :—The Odomata, Amanata, Omakojiata, Ohiyunabolo, Omarobu, Ekpa, Odekina Ata, and some others.

With them are the eunuchs, whose titles¹ are :—Orrata, Ogbe, Ocheji, Ugwalla or Ugwela, Anenka Dugbo, and Obaji Alaka.

The fiction of the Attah's death is maintained among them. The Onoji pretends to ascertain the wishes of the Attah and reports them to the others, who act accordingly.

The New Heir.

At the end of about five months, the probable successor sends in secret to the Ashadu, and says that he has heard that his "father" is ill. The Ashadu replies that he is indeed ill. The heir then calls all his immediate relatives together and begins to prepare for the installation ceremonies.

In the case of the late Attah Atabo and of the present Attah the period of the interregnum was cut down to three months.

Choice of the Attah's Successor.

The successor is chosen from the descendants of the Attahs, Ame Ocho and Irodo Aduga (sons of Akumabi, who was by some counts the fifth, by others the seventh, Attah), and of Ogalla and Adoko Adogbi (sons of Akogu, the sixth or eighth Attah, according to the count accepted). All these four were grandsons of Ayegba Doko (first or third Attah).²

So far as I can ascertain, the senior man of the family who are next in turn is always the one chosen, but the late Ashadu stated once to Mr. Chapman that he had power to alter that if he chose, and I have been informed that an old and infirm man or an invalid, though next in succession, would be passed over.

Killing of the Attah.

The authority of the Ashadu in this matter may be inferred from the fact that, in the event of an Attah making himself very unpopular by cruelty, extortion, etc., the Ashadu is credited with the right to have him killed.³

The only instance of this is the case of Ekalaga, grandfather of the late Atabo. In this instance the Ashadu sent for Amocheji, the grandfather of the present Attah,

¹ See Glossary for meanings of these titles.

² See "Genealogical Tree" (Appendix 7).

³ This does not mean that it was a regular custom, or that it happened frequently, as inferred in vol. 2, p. 61, of C. K. Meek, *The Northern Tribes of Nigeria*.

and told him that the Attah was dead. After the departure of the messenger, a large cap was prepared and filled with red pepper. The plotters went into the Attah when he was sleeping in the afternoon, lifted his head gently so as not to wake him, and quickly pulled the cap over his head, and held it tightly round the neck till his struggles ceased. According to some accounts, he was clubbed to death, but this is improbable, as the conspirators are said to have shown his dead body to others afterwards without a mark or wound on it.

The celebrated Onoja Oboni was murdered,¹ according to some accounts, at Ogrugru, by his Sarakuna, but the Ashadu had no hand in this; moreover, Onoja Oboni was never installed as Attah, because he could only claim his right to the title through his mother.

The Kabba Seer.

After the Ashadu has sent to the next in succession, as described on p. 258, he calls together all his own and the dead Attah's relatives, and they consult a seer who is called in from Kabba. They say that Kabba has a reputation for having the best seers, and also that it would be unwise to have in an Igala seer, who might have been bribed.

The seer is asked to find out whether the man the Ashadu has sent is the rightful heir, whether he will treat the people well, whether he will live long enough to make it worth while installing him, and *whether he is likely to be too strong for the Ashadu*. The Ashadu is my authority for this, and, if it is true, it would appear that the Ashadu claims to be, or would like to be, the "power behind the throne." The seer receives a large fee, amounting to the price of one cow.

The Sending of the Ikabi.

After a further delay—not till the end of a year from the Attah's death, according to some—the Orrahta tells the-Ugwalla to inform the Ashadu that the Attah is dead. The Ashadu then summons one of his retainers, who has the title of Ikabi, and makes him put on his (the Ashadu's) cap and clothes. This is, presumably, to show that he represents the Ashadu.

The Ashadu gives the Ikabi a horse for the journey, and the Okebeshi a cap of red velvet, to present to the heir. (In former times no one but the Attah [and the Ashadu, according to his own account] might wear red velvet; death was the punishment for doing so).

When the Ikabi reaches the future Attah's house he backs his horse to the door and, holding the red cap behind him, calls out, "Your 'father' is not well, the sickness is too strong for him: I have something to sell you." Asked what the price is, the Ikabi replies, "Two slaves and 200 brass rods."² There is some haggling over the price, which, when agreed to, is paid at once.

¹ See Appendix 1 for account of his death.

² The money equivalent of these is now given.

The future Attah then kneels before the Ikabi, who places the Okebeshi on his head. The Ikabi takes him by the wrist and lifts him up, saying as he does so, "The Ashadu told me to catch you. I do so thus." The Ikabi then turns to the people around and says, "Behold the Adokainya" (this title means "One who will have a great title, but has not yet received it"). The people salute him with the word "Todo" (a shortening of *ita* = the story, *ido* = is ended).

The Ikabi then tells the Adokainya to remove his loads from his house, saying, "You cannot have two homes, your proper home is now at Idah."

The Ikabi then sets fire to the house, to signify that the Adokainya can never return there.

Ceremonies at Igalogwa.

The Adokainya accompanies the Ikabi to Igalogwa, one of the small villages that form part of Idah.¹ This is where the Ashadu lives. When they are near the Ashadu's house, the Ikabi goes ahead and informs the Ashadu that "the stranger has come." The Adokainya is told to enter and is received by the Ashadu, who sits on a Nupe stool. The Adokainya salutes the Ashadu with the salutation "Anu" (greatness), going down on his hands and knees. The Ashadu raises him and embraces him, saying, "I have found a new wife to-day." He points out a house he has prepared for him, and tells him to go and rest. He sends him food and any other things he needs.

The next morning at dawn the Ashadu assembles all the people and tells the Ikabi to take them to salute the Adokainya. They are followed by the relatives of the late Attah and his Edibo.¹

On the third day after this the Edibo are taken to the Adokainya and swear allegiance to him.

After the Edibo are finished with, the Onoji are brought to the Attah by the Ikabi, and they salute him. He chooses one of them, whom he puts in charge of the Okute with an Edibo to help him. The latter, however, has other duties in the way of introducing people to the Attah, etc.

On the eighth day after the Adokainya's arrival the Ashadu goes to the house where the Adokainya is, and, standing upright, gives him the salutation "Todo." He then sits down on the same sort of stool or chair as the Adokainya happens to be sitting on, and makes the customary salutations of a host to a guest.

After this the Ashadu brings forward any who may have complaints against the Adokainya, and, before anything further can be done, the Adokainya must make full reparation to any whom he may have wronged.

A knife is then brought, and three gashes are made in the left wrists of the Adokainya and the Ashadu. A kola nut is broken in half; each takes a half, rubs

¹ See Appendix 2.

it in the other's blood, and eats it, saying, "If I know of anything that may harm you and do not tell you, may the oath I have taken slay me."

On the ninth day the Ashadu assembles the people, and tells them he is going to trade with his wife in accordance with the ancient custom. They then disperse, after saluting the Adokainya. The Ashadu then tells the Adokainya that he expects nine slaves as the price of the title of Attah. The Adokainya says, "This is a great price, can you not reduce it?" They haggle for some time, and the price is brought down sometimes as low as two slaves. (The equivalent in money is paid now.)

Piercing the Ear of the Adokainya.

The Ashadu then calls his chief wife and gives her the title of "Achainya Anuku" (the woman who pierces the ear), if she has not performed this ceremony before. The Adokainya presents her with a female slave, a mat, a pair of sandals, a cock, and 100 brass rods.

The female slave has to prepare the medicine that is put on the ear after it has been pierced. The mat is for the Achainya Anuku to sit on while she performs the operation. The sandals are to prevent her feet being defiled by the earth. The cock is sacrificed to the "Okinga" so that the ear may heal quickly. The 100 rods are a gift.

The "Okinga" is represented by a small figure of a man, carved from any sort of wood, between 6 inches and 1 foot in height. I have been unable to discover up to date its exact significance. The blood of the cock is poured over it.

The ears are pierced inside the Adokainya's house. After the operation they proceed to a four-sided tent that has been prepared: there the ears are washed in the medicine prepared by the slave, which consists of a decoction of herbs in warm water.

The Adokainya passes the night in the house of the Achainya Anuku. In the morning the Ashadu goes to salute him, and receives from him a gift of cowries worth £5. The Ashadu then calls the people together and presents the Adokainya to them as the new Attah, giving him for the first time the salutation of his proper title. The salute is "Agabaidu" (*agaba* = lion, *edu* = come to full strength). Another interpretation is "Lion of the river." It is a Nupe, and, I believe, a Jukun salutation. The people prostrate themselves and give him this salute, and one red feather of the "Iloko" bird (not identified) is placed in his cap.

The piercing of the ears signifies that the Adokainya is about to become the Ashadu's wife. It is, I believe, a Jukun custom. The reason for this curious mock-marriage ceremony is given in Appendix 5, the story of Ebele Jaunu (or Obele Jonu), the alleged ancestress of the Attahs.

The Ceremony of the Whip.

After the Attah has been saluted, the Attah and the Ashadu enter the latter's house: the Ashadu calls for his "Akpa," a chair or stool made from a hollow tree-trunk, with a cover in which are many charms. He sits on this with the Attah before him. In his hand he holds a small whip with a leather thong, and he says: "Attah, to-day I beat you." He strikes him once, and says: "The Attah has no relatives." He strikes him a second time, and says: "The Attah has no son." He then puts down the whip, and says: "You are now Attah: you have powers of life and death. Kill anyone who says he does not fear you." The origin of this custom is unknown.

Ceremonies on the Way to Ojaina.

The Attah then leaves the house and mounts his horse with the assistance of the Edibo, who form a screen round him by holding out their robes at arm's length so that none may see him mount. He proceeds to Egbe, no far from the Ashadu's house, where the Ashadus are buried. There he is met by the Ada Okpura (strong father), who is the guardian of the tombs, to whom he gives a ram,¹ a white cloth, and a white cock. He asks him the way to Ojaina. The Ada Okpura goes before him till they come to a certain rock known as Oja Awka (head ground smooth). There the Ada Okpura produces a tortoise, which he kills, together with the white cock, and places on the rock, covering them with the white cloth. This is a sacrifice to the shades of the former Ashadus. As this is being done, the Attah says: "I go to Ojaina to take up the inheritance of my fathers. Give me long life and wisdom. Give me strength to beget many children. Grant me wealth and many wives. Destroy my enemies."

They proceed to the Okuta Lechi (stone on another). This, as the meaning implies, is one large rock resting on another. Here the Attah gives the Ada Okpura a he-goat, a white cock, and a white cloth. The goat and cock are killed, placed on the rock and covered with the white cloth. The Attah makes the same prayer as before, but it is addressed to the spirits of that place. All present then drink beer.

He passes on to Okpwe (known as the place of three palms), where he gives the Ada Okpura a white cloth and again prays to the local spirits. Thence he goes to Udonu (dividing), a place where three paths meet, where he gives the Ada Okpura another white cloth for himself, and leaves him.

A slave now goes in front of him to show him the way to the Ugwalla's house at Ojaina. He arrives there at night. He dismounts and knocks at the door. The Ugwalla asks who is there, and the Attah gives his name. The Ugwalla says: "What sort of a puppy are you, what do you want?" The Attah answers, "I desire the belongings of my father." The Ugwalla then asks: "What do you bring?" and the Attah answers: "Look what I have brought."

¹ The ram is apparently a gift to the Ada Okpura for his services.

The Ugwalla opens the door, and the Attah pushes a slave (£5 now substituted) in front of him. The Ugwalla then tells him to come in and sit in his father's place. The Attah enters and sits on the bed. At dawn the Ugwalla brings his three loads of yams, a goat, and some beer as gift-. The Attah remains there eight days. The followers of the late Attah are living in the bush nearby in grass huts—for what reason I could get no clear answer. During the night of the eighth day, the Attah gives the Ugwalla two cloths and some palm oil to make lamps with, and the Ugwalla gives the Attah a small coat made like a child's coat, called "Ewe"—this is that he may be ready for the birth ceremony which takes place later on. He then goes on foot to Ofoloko (place of birth), where he sleeps in the bush with no roof over him.

The Birth Ceremony.

At Ofoloko the Attah sends the Ogbe to the Onubi Ogbo (the one with the oldest title of all) with a leopard's skin (*angraw ckaw*), a slave (now £5) called "Adu" (the orphan), a red blanket (*amolu*), and a pair of boots ornamented with ostrich feathers (Fig. 18). He also provides four white cloths, which are used to form a four-sided tent which is erected by the Attah's people.

The Onubi Ogbo himself thus describes what follows:—

"I go to Ofoloko with the Onedi.¹ We go inside the tent with him. In the tent is the Leopard skin covered with the red blanket and two 'Akpa' (seats made from hollow tree trunks). The Ogbe and some small boys (our relatives) are outside. We two sport with each other as though we were man and wife. We lie on the blanket together. I rise and sit on my 'Akpa.' The Attah enters the tent secretly and gets beneath the Onedi's robes. I call to the Ogbe that my wife is pregnant, and the Onedi begins to groan as though suffering the pangs of childbirth. She sits on her 'Akpa' and rocks to and fro: she calls out she is in great pain. The Ohega (the Chief Diviner) is called. He casts lots with four pods of the Kawo tree (*Azida Africana*)."² (The versions of the Attah, the Ashadu and the Onubi Ogbo are now combined.) "The Ohega says, 'Bring a slave.' Adu is brought. He then looks at the pods and says, 'The child is a boy, not a girl: he will be lord of the earth, he will be born now without trouble to his mother.'"

The alleged child is then supposed to be born. He at once raises his arm to stab his mother with a small spear. (The Onubi Ogbo would not mention the spear—denied its existence, in fact. The others mentioned it with evident reluctance. Is this the sacred spear of the Jukuns?)

The Onedi seizes his wrist and hands him to the Onubi Ogbo, saying: "Take this child of yours: he is so strong and evil, that he wants to kill me. I will never

¹ See Glossary.

look upon his face again." She runs out of the tent and away from the place.¹

The Onubi Ogbo calls the Ogbe and hands the Attah over to him, saying: "Here is my son. Look, he already has all his teeth, he is not imbecile, nor lame, nor are his private parts imperfect. He is now your life's charge. If he dies you go with him."

The Choosing of the Okute.

The Onubi Ogbo then sends for his "Okute." He has three, to represent the three branches of his family who take the title in turn as each holder dies. The Okute are leant against the tent, the Attah is blindfolded. The Onubi Ogbo says: "Here are the Okute of your ancestors, take one."

The Attah is taken near to them. If he manages to choose the one belonging to the present Onubi Ogbo's branch of the family he is expected to live a long time.

The Attah's nine Okute are then brought, and the same proceeding is carried out, the Okute being leant against a horizontal stick supported by two forked sticks placed upright in the ground. The Onoji alone know to whom each Okute is dedicated, and, if the Attah cannot find the right one and has to have his hand guided by the Onoji, he will not enjoy a long reign.² When the Attah seizes the Okute everyone shouts and claps, and the Kakakiya are blown for the first time since the previous Attah's death.

Putting on the Robes and Insignia.

The Attah then enters a large red tent, which has been previously prepared. This is four-sided and white inside, and is called "Onyabo" (the secret house). Here he finds all the garments and ornaments pertaining to the initiation ceremonies. (Figs. 1-18, p. 274-7). He removes his garments, and these are put on him one after another. If he is unable to bear the weight of them all and tells his people to put no more on, he will not be expected to live long. This is looked upon as a test of fitness. Atabo is reported to have been unable to bear the weight of them all, but the present Attah, who is a fine man physically, was able to do so. He wears no clothing above the waist, because in the time of the first Attah none were so worn. The various garments are, in most cases, very old, and are said to have been introduced by Ayegba Om'Idoko.

The Ekrané Ceremony.

A strong horse is brought for the Attah. He mounts, assisted and concealed by the Edibo. He rides towards his future home, stopping and dismounting at

¹ In former times the Attah is said to have either killed his mother or sent her to some place far away and spread a report of her death. Whether one Attah did murder his mother, and this part of the ceremony is the result, I cannot discover. It is true that the last Attah sent his mother to live at Ogumi, or, at any rate, kept her there.

² This is said to have happened in the case of the late Atabo, but the present Attah succeeded in finding the right Okute at once.

Ehrane (the house of charms or *safi*). With him are the Ashadu, the Atabo, and the Ashadu Onofe (the slave or assistant of the Atabo).

The Attah provides a tortoise and four kola nuts. He touches his forehead with the tortoise and says: "Grant that my life may be long and my wisdom great. May my traders find wealth and my farmers good crops. Grant that no great sickness may come upon the people during my reign, but rather that they may multiply exceedingly."

The Ashadu then takes the tortoise and touches the ground with it, saying: "Attah, may you enjoy good health and a long reign. May you have many children and may death overwhelm your enemies."

He hands the tortoise to the Atabo, who repeats the prayer, beats the tortoise on a rock, and passes it to the Ashadu Onofe. The latter takes a sharp stick, impales the tortoise, and plants the stick upright in the ground. Two of the kolas are broken and scattered on the ground, two are taken by the Atabo.

The origin of the use of the tortoise is said to be that the first Attah used it as a sacrifice in order that his wife might be as strong as a tortoise-shell and so be able to bear many children.

After this ceremony the Ashadu and those with him return to their homes, the rest of the people go on with the Attah.

Alaku, Egu, and Ogwedé.

Near the Attah's house is a gateway or *zari* called Alaku. Here the Attah gives the Ogbola a white cock, which is killed and suspended from a stick in the entrance to prevent anything evil from entering.

Not far from here is a small round hut called "Egu," which marks the site of the first Attah's official residence. The Attah rides three times round this, that his ancestors may know he has come into his inheritance, and rejoice with him.¹

The Attah goes on to Ogwedé, an oblong building in front of his house, often used as a Court House. Here the Attah dismounts and calls for silence. He then addresses the people, thanking them for their support, and telling them that all the signs have been favourable at his accession. He says: "May God (Awjaw) grant a wife to everyone who is without one. May he give wealth to the poor and children to the childless. May he keep sickness far from you and cause you to multiply. May his blessing be upon you all."

The people all give him the royal salute and he enters his house. He orders food and palm wine to be given to the Amajofe (*Sarakuna*), the Edibo and their wives, and the Onoji. They eat, and drink, and revel. His loads and the Okute are unpacked and stowed away.²

¹ When the yam harvest takes place a goat is sacrificed here to each of the dead Attahs.

² Before the Attah enters his house the Orimi Chebbo has to be taken there. (See Appendix 8.)

First Day's Work as Attah.

The next morning the new Attah enters upon his duties, and formerly made a point of executing at least three of the criminals brought before him that day to show that he had powers of life and death. He calls his relatives before him and chooses who shall be members of his Council. Those chosen are not necessarily permanently elected: they are tested for some little time, and those found unfit for the work are eliminated in favour of others of greater intelligence. On this day also a new Eunuch was made (probably more than one). When this unfortunate was healed, he might go out and take possession of anything, even a canoe full of valuable gear, and no one dared complain. The titles proper to the members of the Attah's household are given on this day, both to men and women. They are too numerous to enumerate. Also any titles not already awarded in connection with religious ceremonies. These are held for life.

The Ogaingain Ceremony.

Nine days later the ceremony of Ogaingain takes place. The Ogaingain is an oblong tent: it is also called "Abo." The meaning of the word is "causes fear," but I have not been able to find out the origin of its use in connection with the ceremony. Possibly it is so called because it is frequently closed during the day, and, each time it is reopened, the Attah is discovered dressed in a different robe.

The Attah comes out of his house and enters the Ogaingain, where he remains for some time. When he appears again he sits down and beats his breast, saying: "I am 'Omatayina,' the small leopard that is mote to be dreaded than fifty wild cats. He who wishes to see a strong man, let him look on me." He asks the people if they will follow him, and, if there is a war in prospect, announces the day of departure for the expedition. When he stands he rests his arms on the shoulders of the Ogbe and the Ocheji.

The people salute, and say they will follow him anywhere. They thank him.

The Amajofe (Sarakuna) come and salute the Attah, and dance as they go and come, even the old ones, to show their exuberant delight at his accession. Beer and palm wine are served out to the Edibo and other fighting men, who are all armed. Mad with drink, they perform a sort of war dance, firing guns and waving spears and swords. In former times, apparently, the Edibo had free licence on this day, and many people were killed, and any children they seized they could sell as slaves without the parents being able to obtain any redress.

Inikpi Ceremony.

This ceremony takes place nine days after the Ogaingain, in the market-place, where a cone-shaped erection of dried mud about 5 feet high marks the place where Inikpi, the daughter of Ayegba Om'Idoko, was buried alive.¹ Inikpi is believed to have become a powerful spirit that watches over the destinies of the Igalla.

¹ See Appendix 6 for the story of Inikpi.

The Attah provides a goat, a cock, a jar of palm oil, a white cloth, and four kola nuts. The Atabo sacrifices the goat and cock, and pours their blood over the mound. The palm oil is also poured over it, and the kola nuts are broken and scattered on the ground. The white cloth has a slit made in the middle and is put over the mound, the top of the cone protruding through the slit. Inikpi is then supposed to be clothed and fed.

In former days a criminal was spread-eagled between two upright poles and an executioner drove a stake through him by hammering it slowly upwards. If the stake failed to come out through the head, the executioner had to take the place of the victim. The victim's spirit was supposed to become Inikpi's slave in the other world.

When the sacrifices are finished the Attah enters the Niger with bare feet (the only time his feet are supposed to touch the earth), and returns to the shore. This symbolizes the fertilizing of the land by the waters of the Niger during the "Rains." The Attah brings the water on his feet to the land.

APPENDIX I.

Lopeds of Onoja Oboni.

ONOJA OBONI was the son of OGI Abatanu of Ogrugru, who married Obudali, the sister of Ebele Jaunu, and therefore grandson of Agenapoje.¹ Ebele Jaunu was, according to the general belief, the first Attah, although a woman. Onoja Oboni was derisively called "the son of a woman" (*obon* = the female genital organ), because he could claim relationship to the Attahs only through his mother. He is said to have been a giant in height and to have had six fingers and toes. His personal prowess was such that a whole village would flee on seeing him approach alone.

He made war on everyone he could find till all were beaten or had fled. He then settled in Alo, near Itobe, for a time, saying he was now going to fight the people in the heavens above. For this purpose he set thousands of people to work to build an immense tower on Oguo Ubakeji (*oguo* = hill, *uba* = visible from afar, not deceptive, *keji* = close to the sky). As was inevitable, the building collapsed when it had reached a height beyond the sustaining strength of its walls, and vast numbers of people were killed in its downfall. The scar to be seen on the hill at the present day is pointed out as one of the signs of this great work.

Leaving Alo in disgust, he went to Ogrugru. This place he peopled with slaves taken from many different places, and the different parts of the town are still distinguished by the name of the tribe or place whence he took them. Here he said he was determined to fight the people underground, and set an army of men to work to dig a long, deep hole sloping into the earth. It is supposed to have reached a length of eight miles. Into this he first sent 500 of his wives, then 500 boys, 500 men armed with guns, 500 Okute bearers, and 1,000 drummers. After which he himself rode in on horseback and bade his nobles follow him. Their leader, Chimebogbo, addressed them as follows:—"He wishes us all to die with him. We will not follow him. Let us fill in the hole before he can get out." This they did with rocks, tree-trunks, stones and earth. To this day no one will follow the road leading to this hole. The place is said to be haunted, and at night the sound of drums and *lokakigba* can be heard there.

Another version of the story of his death is that he was afflicted with syphilis and his life became a burden to him. He therefore had an immense hole dug, and entered it with all his people, then called on those left above to fill it in.

¹ See Appendix 5.

The "Akwata."

Before his death, Onoja Oboni was sitting by the river one day when he heard something groaning in the water. He entered the water and saw something, but could not make out what it was. He caused 1,000 jars of palm oil to be poured into the river, whether as an oblation, or to have some effect on the mysterious something, is not clear. He was then able to seize something solid, which he dragged to the bank and found to be a chair or seat made from a hollow tree-trunk. It had two lids or coverings. He opened them, and, after looking in, "his eyes turned." After that he was unable to recognize people. The idea being, so far as I can gather, that he who looked inside thereafter became so righteous in his judgments that, if his own son were charged with some crime, he would sentence him as if he did not know him.

After his accession each Attah sends to Ogrugu a slave, and the "Akwata" is sent to Akwacha (near Idah), where the Attah goes and takes the covers off, therefore acquiring the power of upright judgment before spoken of. A eunuch called Adachi used to be in charge of this at Ogrugu, but he was driven out by the Ogrugu people. The late Attah wanted to send for the "Akwata," but quarrelled with the Ogrugu people over the amount of money to be sent in lieu of the slave, so the "Akwata" was never sent.

I have not had time to collect and check all the stories connected with this remarkable man. The D.O., Nsukka, has collected some information about him from among the Ibos which would have served as a useful check could I have been able to get it in time.

Sacrifice of Oboni's Son.

Since writing the above, another story has been brought me. It is said that Oboni, when at Alo, despairing of the efforts of various witch-doctors to prophesy truly, or to help him to obtain the title of Attah—it is not clear which—killed his son on the top of Ubakeji hill and cut off his head. With this he tried to practise divination, saying that a son would not deceive his own father. This is now a saying among Igallas: "Omaw kionebi yia dawla gwogwon." Literally, "Son born to one will not deceive."

APPENDIX 2.

Edibo.

THE Edibo are practically the personal retainers of the Attah. The Ashadu has his own Edibo too.

They pay them anything up to the value of £5 for the privilege of initiation, and are thereafter exempt from any law but that of the Attah. The Ashadu states that, once a man became an Edibo, he could take any woman he chose without paying the customary dower, or any man's goods without the latter daring to complain about it.

Anyone who had not a special "Kofar"—I use the Hausa term, as I know of no exact equivalent in English—or who was not himself a relative of the Attah or of some considerable rank, might not approach the Attah, except he were introduced by an Edibo. This, of course, meant a considerable income from bribes.

They could be called upon at any time to build the Attah's house or for any other services, and, when the Attah went to war, they led the van.

They are sworn in the "Okute" and "Ajibo,"¹ and take an oath that they will defend the Attah by word and deed, and report anyone who is intriguing against him. The Attah at the same time swears to protect them from all other people.

They still try to maintain their ancient rights to some extent, such as refusing to obey the orders of the District Head, refusing to go to Native Courts, to do road work, and so on, and the Attah Atabo had to issue a special order to all District Heads informing them that the Edibo could no longer claim exemption from the ordinary duties of citizenship.

¹ See Appendix 3.

APPENDIX 3.

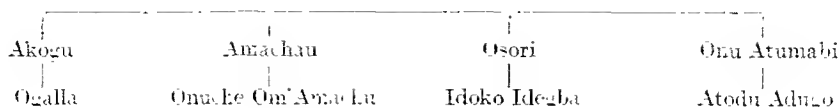
Okute and Ajibo.

THE word "Okute" means "stick." The Attah's Okute are made of bamboo, and have no particular marks on them, but are of different length, from 5 to 6 feet. A new one is made for each Attah, and one of the old ones destroyed to keep the number to nine.

The number "nine" constantly recurs in the ceremonies, and may have some peculiar significance which a knowledge of Jukun customs might reveal. In this case it is said to represent the original founders of the dynasty of the Attahs of Idah, and the names given are :—

Idoko (never made Attah)

Ayezba, Om Idoko



The Okute of Idoko was withdrawn, as he was never made Attah.

The Okute of the Attah are kept wrapped in red cloth and are in the care of one of the Onoji and an Edibo.

The Ajibo of the Attah is made of brass, with little bells on it. That of the Ashadu is made up of nine small sticks about 18 inches long. The Ashadu also has his own Okute.

Every morning the Attah, before eating, goes to the hut where the Okute are kept. They are leaning against the wall. He strikes the ground before them with the Ajibo and says, "Idoko eat kolas, Ayezba eat kolas," and so on through the list of the previous Attahs. The Ashadu does the same with his Okute, saying the names of the previous Ashadus.

Then, when the Attah eats, he places a small portion of the food in the Ajibo.¹

The Onubi Ogbo has three Okute. They are of bamboo, but are bound with white cloth. They represent the three branches of his family which take the title in turn. They are of different lengths like those of the Attah.

APPENDIX 4.

Attah's Food.

THE Attah's food is supposed to be prepared by small girls, who wear no cloth and have not reached the age of puberty. When they bring him food and drink, each one must first eat a small portion of what she brings, or drink some of the water or other beverage. The Attah is supposed to eat alone. I understand, however, that these customs are falling into disuse, the Attah preferring to have his food cooked by more experienced and, therefore, older females.

APPENDIX 5.

The Legend of Ebele Jauna and Ogwa.

ACCORDING to one account, Ebele Jauna was a woman of the royal family of Wukari, though the relationship to Wukari is never mentioned. According to another account, she was the daughter of Agenapoje, who was miraculously born of God. She came to Idah and settled there with many of her people, as she found it good hunting country.

One day a young man was captured by one of her hunting parties and brought in as a slave. His name is sometimes given as Ogwa, sometimes as Aga Okpoluwale (a distinct Ibo name).

In the morning all the men went out hunting, and the women said they wanted Ogwa to help them to mash the yams. He was called and put to this work. The women observed his good

¹ See Appendix 4 for Attah's arrangements for eating.

looks and splendid figure, and told Ebele Jaunu about him, saying it was a pity he was a slave as he would make a fine husband for her. She replied, "Be silent, he was a free man before he became a slave." She used the words *oṣa* (son), *aṣhadu* (slave).

She ordered that water should be brought him to wash in, and presented him with a magnificent black robe. That night, when she retired to her sleeping-place, she sent for him and he passed the night with her. In the morning she told him not to go back among the other people, but to sit down in some place apart. She then called the people together and told them to salute him as her husband.

She told him to go to a certain place, about a mile from the present Attah's house, and build himself a house there. The place has ever since been called "Izalogwa," the place of the first Igala (Igala Ogwa).

This also accounts for the title of "Ashadu." Up to the time of the Attah Amaga no Ashadu might wear a cap or sit on a mat before the Attah. When the Attah went to fight at Agwodaw the then Ashadu, Ohimeji Abutu, suffered from a swelling or tumour at the back of his head, and begged to be allowed to wear a cap lest the enemy should make a jest about it. The Attah gave him permission to do so, also to sit on a blanket *oribi* in his presence, till he re-crossed the Ofu on the return of the expedition. The Ashadu was killed in the fighting, so his descendants claimed that the permission still held, since Ohimeji Abutu never re-crossed the Ofu.

Another Version for the Ashadu.

Omeppi, who held the title of Ashadu among the Ibos, came to Idah on a hunting expedition, and built a house at Ofabobo, which is now Izalogwa.

Ebele Jaunu arrived after him, and he fell in love with her on account of her beauty and great wealth. They were married, and because his love for her was so great he said all his people should follow her, and he himself would be her slave, as his title signified.

As he was before her in the land, she asked him to give her a title. He asked what she wished to be called. She answered, "Attah ita" (*attah* = father, *ita* = ends, meaning a father is the greatest of titles and ends the power of all others). He bargained with her as to what she should pay him for this title, and the price agreed upon was nine slaves. These she gave him, on condition that the next Ashadu should pay the reigning Attah nine slaves when he, the Ashadu, accepted his title.

Another Version (by the Ashogbo of Morum).

The Ashadu Omeppa was endeavouring to establish his ascendancy over the Okpoto in Idah country, and invoked the assistance of Ayegba Doko, who had come from Wukari with his five sons on a hunting expedition, giving him his daughter in marriage and the title of Attah.

APPENDIX 6.

The Story of Inikpi.

INIKPI was the daughter of Ayegba Om'Idoko. She is reputed to have been very beautiful and of a noble disposition, and her father loved her more than anything in the world, and she him.

In Ayegba's reign the Jukuns under Appah attacked Idah, and he was unable to make any headway against them. He asked a certain learned Nupe Mallam, what he could do to change the fortune of the war. He replied: "If you do not wish to lose both your title and your land you must sacrifice the daughter you love so much to the spirits of this place."

When Ayegba heard this he was overcome with grief, and appeared prepared to lose all that he had rather than carry out the sacrifice. She, however, heard what the Mallam had said, and went to her father and begged him to save himself by sacrificing her. She is said to have gone to him nine times before he consented.

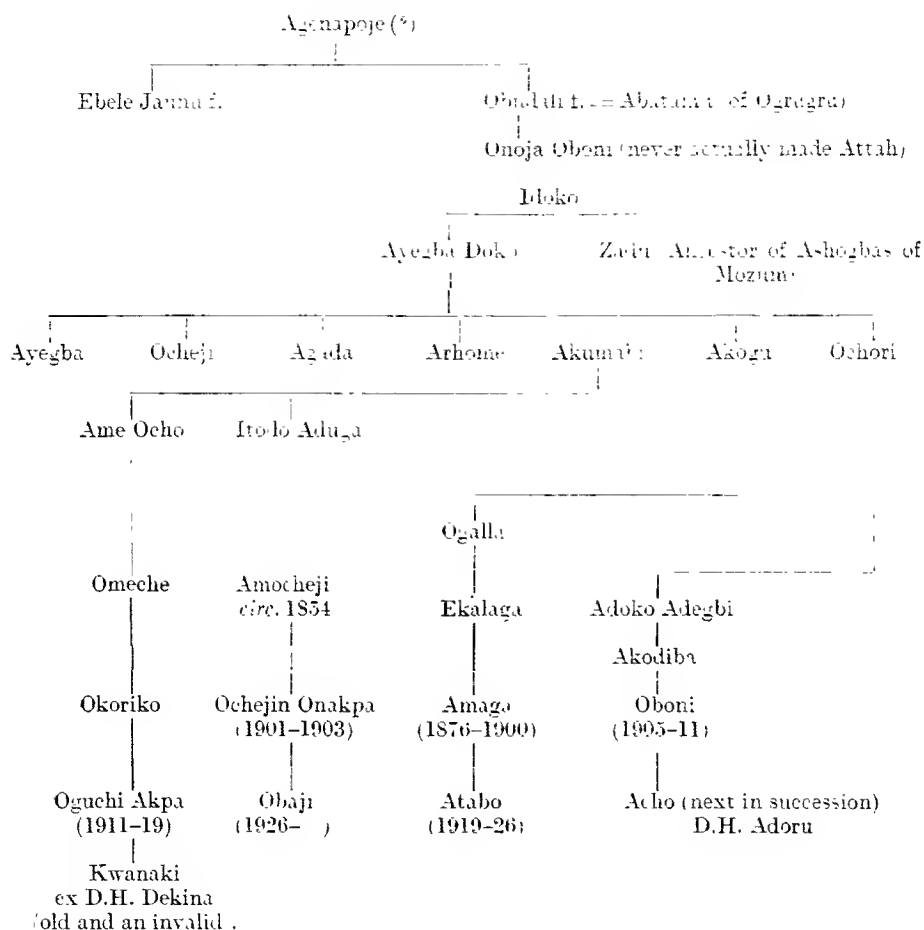
A large hole was dug in the market-place, and she went down into it with nine slaves and with all her jewels and charms. She called to the people above to throw in the earth. This was quickly done. She was unmarried at the time of her death.

The story is reminiscent of that of Jephtha's daughter.

After her death the Mallam supplied the Attah with some charms, which were thrown into the River Nas-allu (near Idah). The Jukuns, who were camped on the far bank, ate the fish taken from the river, and many of them died. The remainder were scattered by Ayegeba and his followers.

APPENDIX 7.

Genealogical Tree of the Attahs of Idah.



APPENDIX 8.

Orimi Chebbu (Charm).

THIS charm is made up of pieces of the wood of the Ata, Iroko, Kaga and Aloko trees, wrapped round with white cloth and about 1½ feet long. It is carried on the head of a nude virgin. It always goes ahead of the Attah to keep away sickness or danger. When the Attah first enters his house this charm goes in before him, the virgin being surrounded by a crowd of women, who dance round her. She may be married by the Attah when old enough, or another chosen for the duty.

GLOSSARY.

Aiyikaw	...	...	...	...	A cock.
Alaku (Ala Aku)	...	...	...	...	The gate of the town.
Amajofe	...	...	...	...	Nobility. Corresponds to the Hausa "Sarakuna."
Amanat (Oma'ina Attah)	...	...	...	...	The most favoured of the Attah's sons.
Anenka Dugbo (Anenka Adungbun)	...	...	...	...	"One who does not sit alone." <i>i.e.</i> one about whom there are spirits. He is the intermediary between the Attah and the Atabo.
Atabo (Attah Ebo)	...	...	...	...	The father of magic or charms. The title is said to have been founded by the first Attah, and there are four branches of the original Atabo's family, who hold it in turn. He takes the leading part in all ceremonies of a religious or semi-religious character.
Ebo	...	...	...	...	The name is shortened from "Ambegu," of which a free translation is "The spirits of the dead."
Elaku	...	...	...	...	"The wild animal dies."
Idah (E-dah)	...	...	...	...	"One cuts off or ends." So called because anyone who brought their troubles to Idah would have them settled (ended) by the Attah.
Igala (Igalla)	...	...	...	...	"The enclosure is opened." The origin of the name is variously given. One version is that the first Attahs fought with the Okpoto, and used to surround their camps with mounds. So their followers were the people who came out when the gate of the camp was opened.
Igala_wa (Igala_gwa)	...	...	...	...	The first Igalla.
Ikabi (Ika mu bi)	...	...	...	...	"The corn store is open."
Obaji Adaka	...	...	...	...	The controller of the "sañ" at the Attah's gate.
Ocheji	...	...	...	...	A messenger.
Oduma	...	...	...	...	(<i>Odu</i> = names, <i>ma</i> = many).
Ogaingain	...	...	...	...	"Causes fear."
Ogbe	...	...	...	...	Corresponds to the Hausa "Kofar." He is the intermediary between the Attah and the Council and some of the title-holders.
Ogwede	...	...	...	...	(<i>Ogwa</i> = in front of, <i>ede</i> = the first day.) The Attah's day. There are only four days in Igala:— <i>Ede</i> , the day on which all religious ceremonies are performed. <i>Afo</i> , <i>Ukwa</i> , the Ashadu's day. <i>Eke</i> .
Ohimabolo (Ohiyumabolo)	...	...	...	...	One who may speak to the Attah face to face.
Okawto Newa	...	...	...	...	"The brain controls."
Omakoji (Oma-ki-koji)	...	...	...	...	"The child who takes the father's place in absence."
Omarobu (Omakalobi)	...	...	...	...	"Son of another father."
Ondomata (Ondoma Attah)	...	...	...	...	The head of the Attah's family.
Onedi (Onu edi)	...	...	...	...	The Chief who waits—for the birth of the Attah. It is also rendered, "One whose title is above all others," in that it applies to the supposed mother of the Attah. The title may be conferred on one of the Ashadu's family by the reigning Attah. The holder is invariably a male!
Onoji	...	...	...	...	Eunuchs.

Onubi Ogbo (Onu bio ogbo)	...	...	"Title behind old." <i>i.e.</i> "the oldest title there is."
			This was instituted by the Attah Ayegba Omadoko, and is given to another of the same family when the holder dies. Three branches of the family hold it in turn. He is the Attah's adviser in matters of ritual. He enacts the part of husband to the Onedi. The Onubi Ogbo may sit on a leopard's skin before the Attah because of the ceremony of birth. The only other title-holders who may sit on mats before the Attah are the Ugwalla, Ohioza, Anaja of Gbebe, Ohimobo of Gande, Oshogba of Mozum, Limam, and Ashadu.
Orrata (Orah Attah)	...	...	The Attah's father.
Todo (Ita ido)	...	...	"The story is ended."
Ugwalla or Ugwela (Igbo Ola)	...	...	"The strong man": is the intermediary between the Attah and the Ashadu.

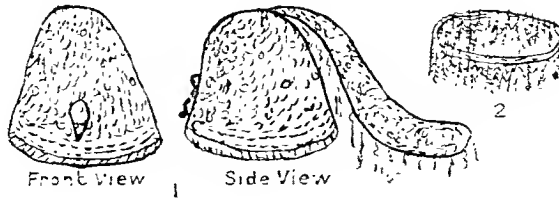


FIG. 1.

FIG. 2.

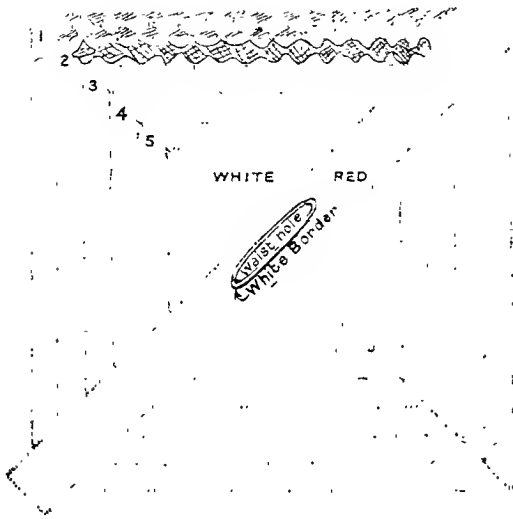


FIG. 3.

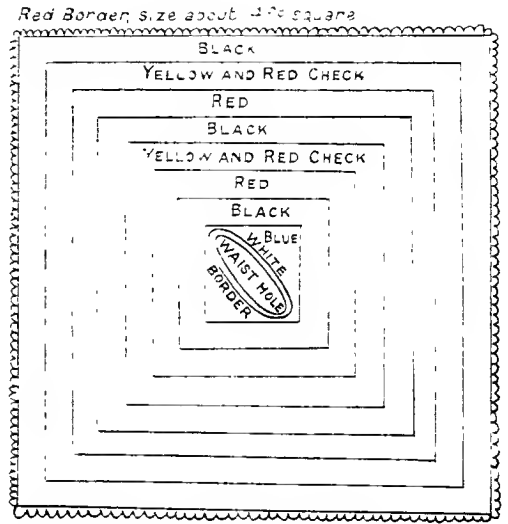


FIG. 4.

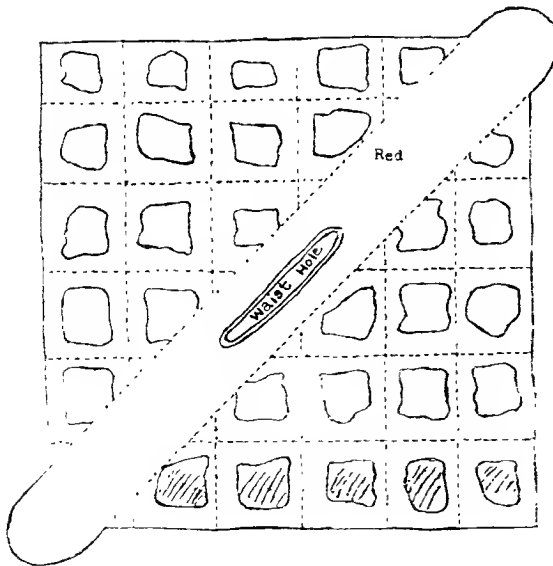


FIG. 5.

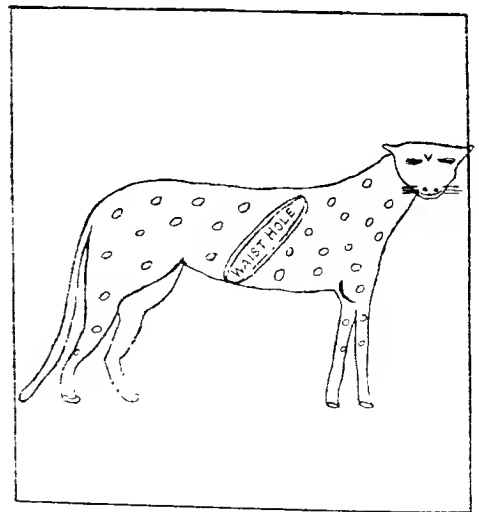


FIG. 6.

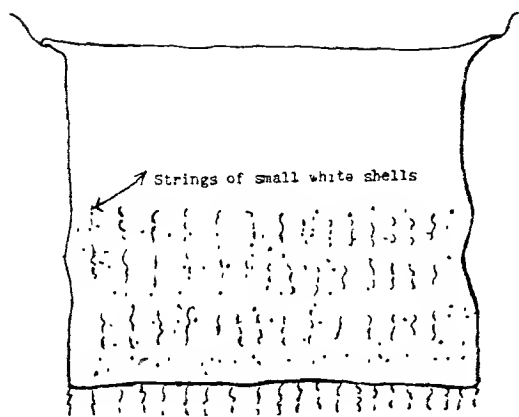


FIG. 7.

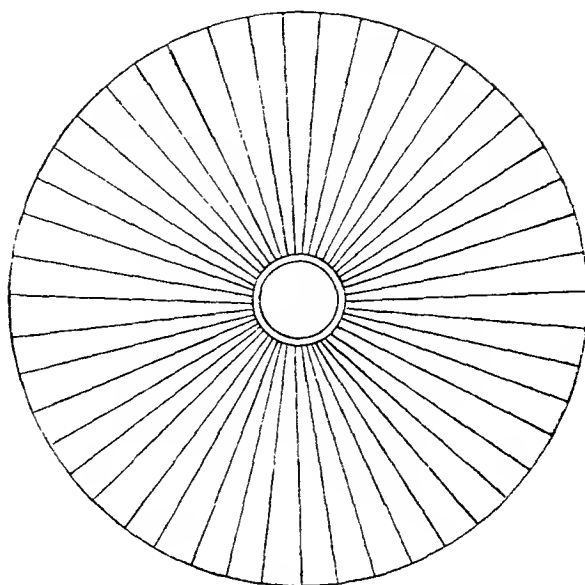


FIG. 8.

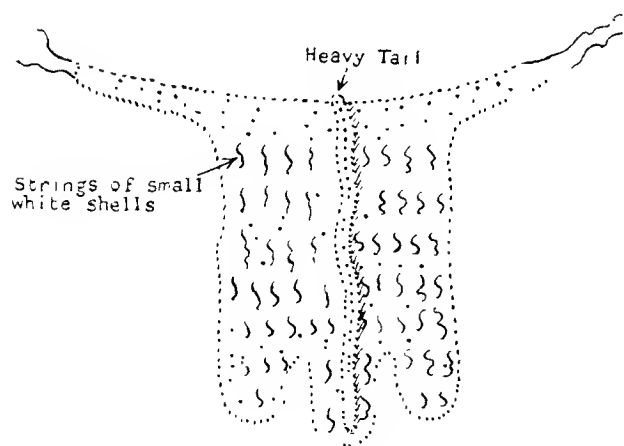


FIG. 9.

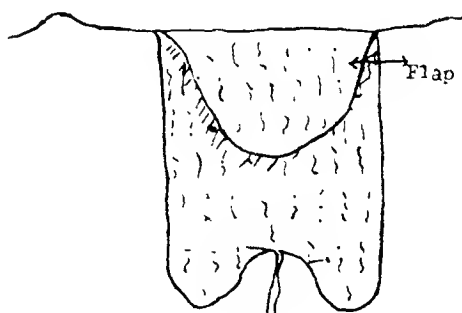


FIG. 10.

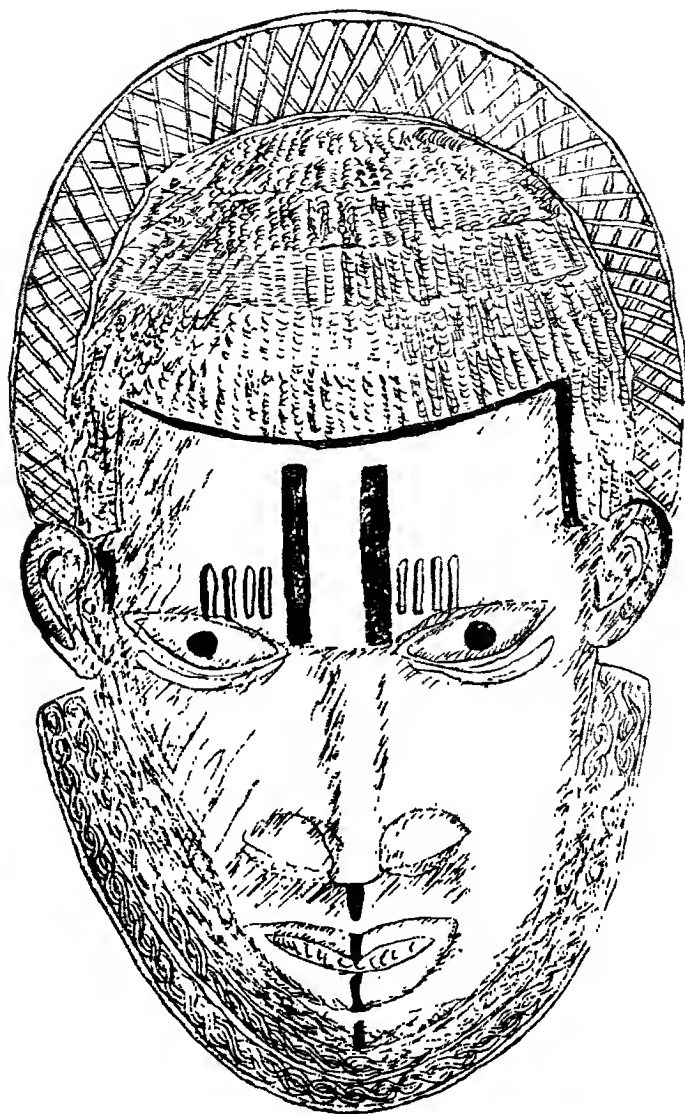


FIG 11.—EJU BEJU ALLO. ("THE EYE THAT CAUSES FEAR.") BRASS MASK IN RELIEF, WITH BLACK INLAY ON THE FOREHEAD, AND RED CLOTH ATTACHED UNDER THE EYES AND NOSTRILS, AND AT THE LIPS.

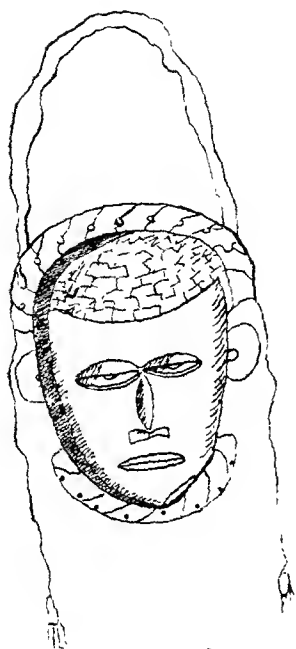


FIG. 12.

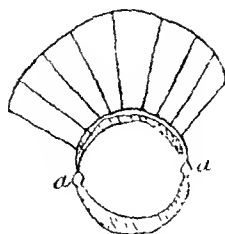


FIG. 13.

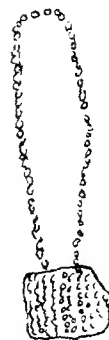


FIG. 14.



FIG. 15.



FIG. 16.



FIG. 17.

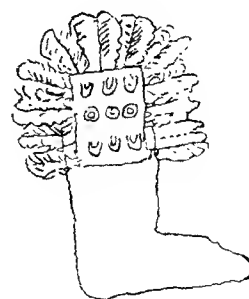


FIG. 18.

EXPLANATION OF TEXT-FIGURES.

- FIG. 1.—Onunu Ehri (Tail of the Manatee). Red cap ornamented with cowries, coloured stones and beads (*Akau*). In the centre is an ivory "moon" (*ochu*), pale brown beads for the moon's light and various small coloured beads for stars. At the base are three rows of blue beads. Strings of small white shells are attached to the cauliform appendage (side view).
- FIG. 2.—Akwebi (*Akwa ibi* = a perfect man). No one else may wear the complete circle of feathers. There are some 200 red feathers of the Loloki bird (unidentified) in this, bound together by thread. Worn under the Onunu Ehri (Fig. 1).
- FIG. 3.—Ichakpa (*Icha'ukpa* = a four-cornered garment).
- (1) Loose tatting pattern.
(2-5) Grey cloth pattern on red ground.
- FIG. 4.—Ichakpa. (Colours indicated on figure.)
- FIG. 5.—Ichakpa. Dark red patches on yellow ground.
- FIG. 6.—Ichakpa. Heavy red felt. Introduced by Attah Ocheje.
- FIG. 7.—Obo Nuku (1) (*Obo* = gathered, *nuku* = smell; described as a garment worn in front to prevent the smell of the private parts being apparent). Made of same material as the Obanti (Figs. 9 and 10).
- FIG. 8.—Obo Nuku (2). Circular heavily padded garment that sticks out all round; 22 red, 16 blue, 9 brown rays.
- FIG. 9.—Obanti (1). Garment of heavy white material, tied round the waist and hanging down behind.
- FIG. 10.—Obanti (2). Garment of same heavy material as the preceding (Fig. 9), ornamented with strings of small white shells. Worn in front.
- FIG. 11.—Eju Beju Allo (= "the eye that causes fear"). Brass mask in relief.
- FIG. 12.—Eju Beju Allo (= "the eye that causes fear"). Brass mask in relief, with red cloth inserted under eyes and at mouth: said to be made in Koton Karifi. Hangs from the neck over the navel. Worn only on important occasions.
- FIG. 13.—Ek'Ehre (*Eka* = spur, *ehre* = foot). Hinged brass anklet; one of a pair for use in war. Hinges with removable pins at *a*.
- FIG. 14.—Achala (= what a man wants he wears). Pendant ornamented with cowries; one of a pair worn over each shoulder and under the opposite arm.
- FIG. 15.—Ikpakala (Armlets). One of a pair of armlets, sewn with cowries and blue and yellow beads, 8 and 10 inches long respectively, and 4 to 4½ inches broad. They are worn above the elbow to hold arrows.
- FIG. 16.—Etiri. Belts made of red material, tightly stuffed so as to be dagger-proof, 2¾ feet long by 2 inches thick. One, sewn with red, yellow and blue beads, is worn round the waist in front, and two others, sewn with yellow beads and cowries, are worn behind.
- FIG. 17.—Ugbo. (The same word is also used for "the painter of a canoe"). Belt, made of velvet sewn with cowries and thickly padded like the Etiri (Fig. 16); 4 feet long and 2 inches thick. Worn round the waist to keep up the trousers.
- FIG. 18.—Okurufe. Soft leather boots without a stiff sole, ornamented with black ostrich feathers. These are worn because the bare foot of the Attah must never touch the ground—a Jukun custom. (See C. K. Meek, *The Northern Tribes of Nigeria*, vol. 1, p. 254.)

In addition to these figured objects, two necklaces, one of cowries and the other of cowries and beads, are worn till death. They are called Ogba Naku (= stubborn refusal), because the wearer refuses to part with them till he must.

DEPOPULATION IN ESPIRITU SANTO, NEW HEBRIDES.

[WITH PLATE XXIV.]

By JOHN R. BAKER. M.A., D.Phil.(Oxon.).

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INTRODUCTION.

THE New Hebrides are an archipelago of mountainous islands of volcanic and coral rock, with heavy rainfall and luxuriant tropical vegetation, situated between latitudes 13° and 21° south in the Western Pacific Ocean. The largest of these islands is Espiritu Santo, which I shall call "Santo" for short throughout this paper. The islands are inhabited by Melanesians, who have decreased very considerably in numbers on most of the islands in the last half-century. My chief objects in this paper are to present my census of the eastern half of Santo, and to consider the extent and causes of depopulation.

My two visits to the New Hebrides, in 1922-3 and 1927, were financed partly by the Percy Sladen Trustees. I am also indebted to Mrs. G. E. Baker and Mr. S. J. Baker for financial assistance. I am very grateful to Mr. W. Anderson and Mr. T. O. Thomas for much help while in the island. Professor A. M. Carr-Saunders most kindly read the typescript and made valuable suggestions. Other helpers are mentioned in the text.

CENSUS OF EASTERN SANTO.

I am not aware that any attempt has previously been made to count the inhabitants of Eastern Santo. My method was to visit personally as many of the villages as possible, and to obtain details of those villages which I had not time to visit from responsible natives well acquainted with them. On entering a new village I collected several of the men, and explained my object through one of my carriers who knew both pidgin-English and the language spoken in the village. I then obtained particulars of every family in the village from them.

classifying each male as a boy, bachelor, married man or widower, and each female as a girl, spinster, married woman or widow. In order to be able to compare sex-ratios of children with sex-ratios of adults, it was necessary that the age at which a boy became a bachelor should be as nearly as possible the same as that at which a girl became a spinster. Unfortunately the natives do not reckon age in years. Marriageable age is no criterion, for males marry at much greater ages than females. I finally decided to take the age at which hairs appear on the face in the case of males, and marriageable age in the case of females. I think these ages correspond rather closely, and perhaps approximate to fifteen years.

It might be thought that a census with any pretensions to accuracy could not be taken without my seeing each person individually, and, indeed, I think that this would be so in most communities. But anyone who knows the Melanesian is aware of the intense interest he takes in his relationship to the other members of his village. I found that they delighted in giving me the information I required, and when I was quite weary, after more than an hour's session, they would be as interested as ever. In the case of young babies, there was sometimes some argument as to whether they were male or female; but I did not record him or her till someone was found who was certain. In order to check the accuracy of my method, I usually pretended, at the end of the census-taking in each village, to have failed to write down one or more families, and asked them to tell me them again. In every case the details given were the same as they had given before.

Fig. 1 is a map of Santo. The coast line is taken from the survey of Montégu and Renault and the Admiralty chart, and the villages are put in from my own compass survey, in the preparation of which I had the help at first of Mr. A. B. MacPhail. We measured sometimes by odometer and sometimes by time on the march. The reader will understand that a quite accurate map cannot be made in this way. All names are spelled in accordance with the R.G.S. II system. Existing villages are put in in capitals and the sites of former villages in small letters. Mr. S. J. Baker has most kindly drawn the map from our survey note-books.

The N.E. peninsula constitutes the district of Sakau. I found its southern boundary by noticing where the language changed. The language of Sakau is very different from the other languages of Santo, and, indeed, from all the languages of the rest of the New Hebrides, particularly in the large number of consonants in the words and the prevalence of "gh" and "dh." Not only in language, but also in physical structure and folk-lore, the Sakau natives are peculiar, and I made a separate census of them with separate calculations of sex-ratio, etc. There is no such sharp distinction between the people of S.E. Santo and the remaining inhabitants of the island, so I took an arbitrary north and south line west of Mount Turi as my boundary.

I had not time to make a census of the western half of Santo, but I took figures from a few villages here and there in this part, and used them, in conjunction with

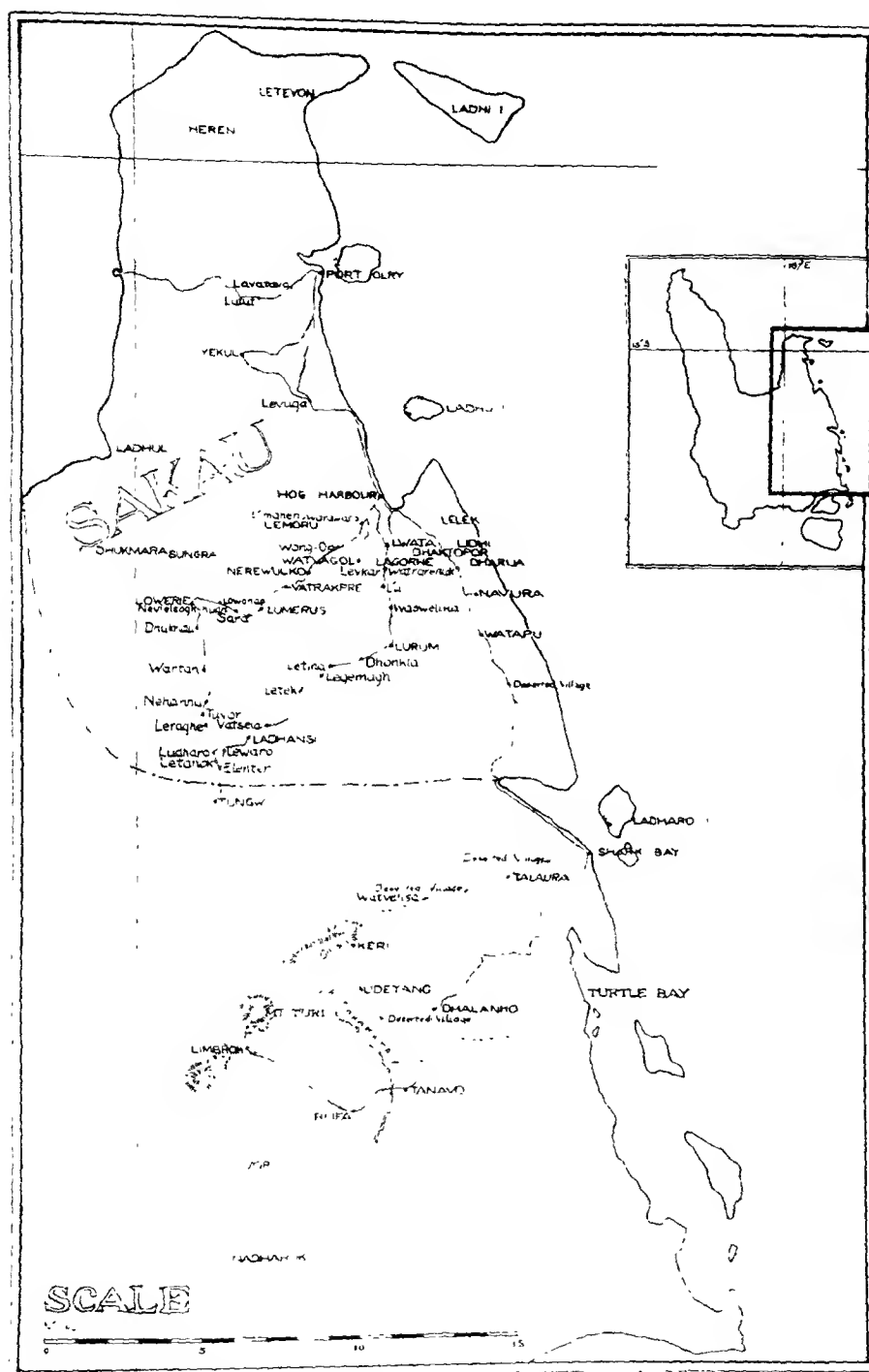


FIG. 1.—MAP OF EASTERN SAKAU, PLOTTED BY MR. S. J. BAKER. THE COAST-LINE IS PARTLY FROM THE ADMIRALTY CHART AND PARTLY FROM THE SURVEY OF MONTÉGU AND RENAUULT. THE REST IS FROM THE SURVEY OF THE AUTHOR AND MR. A. B. MACPHAIL. INHABITED VILLAGES ARE IN CAPITALS, UNINHABITED VILLAGE SITES ARE IN SMALL LETTERS. THE AUTHOR'S ROUTES ARE SHOWN AS A CONTINUOUS LINE WHERE SURVEYED AND AS A DOTTED LINE WHERE NOT SURVEYED. THE EXACT POSITION OF VILLAGES OFF THE AUTHOR'S SURVEYED ROUTES IS NOT KNOWN. THE APPROXIMATE BOUNDARY OF SAKAU IS SHOWN THUS ————.

the figures from S.E. Santo, for calculation of sex-ratio, etc., in the whole of Santo other than Sakau.

To sum up, I took a census of Sakau and S.E. Santo, and got sufficient figures from Western Santo to be able to compare Sakau with the whole of the rest of the island in the matter of sex-ratio, etc.

All my figures are given in the Appendix. Table 1 is a summary of them.

TABLE 1.—*Summary of Census.*

—	Sakau.	Rest of Santo.
Total population	691	— ¹
Sex-ratio	159	115
Number of bachelors per 100 adult males	40	17
Number of spinsters per 100 adult females	7	4
Percentage of adult males lacking wives (bachelors and widowers)	53	31
Number of married women to 100 married men in heathen villages	110	114
Number of children per 100 adult females	128 ²	126 ²

The most striking point in the census is the very high sex-ratio (159 males to 100 females) in Sakau, with the resultant very great proportion of bachelors, who are nearly as numerous as the married men, despite the small amount of polygyny. The amount of polygyny can, of course, be seen by comparing the number of married men with the number of married women. Another very important point in the census is the small number of children per 100 adult women. Both these points are discussed in the part of this paper dealing with the causes of depopulation.

In order to form some estimate of the total population of Santo, I asked the Rev. F. G. Bowie for the censuses of the western half, which he took, with the assistance of natives, in 1910 and 1916. Mr. Bowie kindly put all his information at my disposal. The total figure obtained by adding his census (1910 and 1916) of Western Santo to mine (1927) of eastern, is 4,090. I think that our censuses together cover nearly the whole of Santo and the small islands round the coast, except Mafia Island and some villages in the interior of the N.W. peninsula. The figure includes eleven small villages in the N.W. peninsula which I counted, but Mr. Bowie did not. Probably there has been a considerable decrease in the population of Western Santo since Mr. Bowie made his census.

¹ Total population of S.E. Santo, 229; population of villages studied in other parts of Santo, 249; approximation to total population of Santo (*see text*), 4,090.

² These figures are not really comparable with similar ones for European countries, as New Hebrideans die younger, and the proportion of children in the census is thus increased. The figures are surprisingly low when this is taken into consideration, and when it is remembered that nearly all females marry, mostly at perhaps fifteen years of age.

THE EXTENT OF DEPOPULATION.

Of the extent of depopulation in Eastern Santo it is impossible to speak with any accuracy, simply because no one has ever made a census before. Mr. T. O. Thomas, who has lived at Hog Harbour for nearly a quarter of a century, thinks that when he first came to the island there were, perhaps, ten times as many people in Sakau, four or five hundred people sometimes mustering on his beach at a time. Certainly depopulation has been enormous. I had explored the interior of Santo very little when I noticed that here and there amid the dense forest were patches, each a few acres in extent, which were free from trees and clothed with vegetation only to the height of about 4 feet. The dominant plants in these patches are *Ipomœa peltata* and *Ipomœa* sp., which grow almost to the exclusion of other species except *Plectrianthus Forsteri*, a labiate.¹ The very large heart-shaped leaves of *Ipomœa* give these patches a very characteristic appearance, for it climbs the forest trees bordering the patches to their summits, so that, whether one looks up or down, one sees nothing but a mass of giant heart-shaped leaves. At first I sought some physical explanation of these patches, such as a difference of soil or water-supply from the rest of the country. But my carriers soon corrected me. They are the sites of old native gardens belonging to villages whose inhabitants have died off. Sometimes a few coconut or banana trees, or a dilapidated fence, were still to be seen to prove the truth of my carriers' explanation. Often my carriers had been well acquainted with the village when it had been well populated. In nearly every case they were able to tell me the name of the extinct village. The names of the extinct village sites are recorded in small letters in my map. The reader cannot fail to be appalled by the depopulation which they bespeak. It is true that in a few cases (*e.g.* Lavatavo and Turi) the inhabitants have not died off, but have gone elsewhere as a result of the death of their chief or the exhaustion of their land: but in the vast majority of cases I was told that the inhabitants had simply died.

I hope that in ten or twenty years someone will take another census of Sakau and S.E. Santo, so that an accurate statement of the change in population may be obtained.

THE CAUSES OF DEPOPULATION.

In order to avoid the necessity for a long discussion of the literature on the causes of depopulation in the Pacific in general, and of the New Hebrides in particular, I have prepared a table which summarizes it (Table 2). I will take in turn the causes which have been supposed to be operative, and will consider how far each applies to Santo.

¹ I am very much indebted to Mr. R. Good for determining these species.

TABLE 2.—*Views of Recent Authors on the Causes of Depopulation in Melanesia.*

	Buxton.	Durrad.	Lambert.	Rivers.	Speiser.	Myself.
	(1)	(2)	(3)	(5)	(7)	
Apathy due to loss of old customs ...			—	—		
Loss of power by chiefs ...					—	
Lassitude due to abundance of food ...						
Intertribal wars... ..	—					
Lack of selection						
Firearms				—	—	
Recruiting	—	—	—	—	—	
Endemic diseases	—				+	—
Introduced diseases	—	—	—	—	—	+
Lack of hygiene			—			
Breaking down of primitive quaran-						
tine barriers	—		—			
European clothing	—	—			—	
Unnatural sexual practices						
Too close intermarriage		—				
Ill-treatment of women	—					
Female sterility					—	
Abortion	—	—		—	—	+
Infant mortality	—	—			—	
Infanticide						
High sex-ratio	+					
Cannibalism						
Tinned meats					+	
Alcohol	—	—	—	—	—	
Drugs						
Lack of education			—			

NOTE.—The amount of stress that each author lays upon each cause is represented by the number of marks (+). Some of the supposed causes have no marks against them. This indicates that they have been brought forward as causes of depopulation, but have not been considered by the authors named to act as such in the New Hebrides.]

Apathy Due to Loss of Old Customs.—Rivers (5) considered this the most important cause of depopulation in Melanesia. He supposed that owing to the apathy due to loss of old customs, the natives' resistance to disease, at all times small owing to their suggestibility, was even further decreased: and that having lost interest in life and the incentive to have large families, they extended the practice of abortion, which formerly they had used mainly to prevent illegitimacy. I discuss this theory fully under the heading "Abortion." Roberts (6), following Rivers, lays great stress upon this as a cause of depopulation. For instance, he says, " . . . if the study of native races the world over yields any conclusion, it is that a people bereft of a past, a race scorning its achievements, however petty they may be in foreign eyes, must die." Again, " . . . psychological despair . . . is the basic cause of depopulation " among lowly peoples, and " . . . depopulation is due primarily to psychological causes. . . . Medical . . . remedies . . . merely skim the surface." Precisely how this apathy is supposed to affect the

population is not exactly explained, though certain passages seem to indicate that he thinks that it has a direct effect, causing death from "delusional melancholia" rather than an indirect one (such as encouraging abortion or affecting male or female fecundity). This is certainly not a cause of depopulation in Santo. Many native deaths occurred round about me in Santo, but dysentery, influenza, and tuberculosis were the causes, not delusional melancholia. Robert supports Rivers when he maintains that influenza has a particularly lethal effect owing to the apathy caused by loss of old customs. My experience is directly contrary to this. During a bad influenza epidemic which occurred while I was in Santo, the mortality was far greater in the heathen villages, which retain their old customs, than in the Mission village of Hog Harbour, though every individual in this village got the disease. Further, when a heathen native gets ill, he considers that his illness is due not to natural causes, but to the supernatural powers of some other person or persons. A sort of fatalism assails him, and death is far more likely to occur than if he were a rational being. It is much more likely that this fatalism would kill a heathen native suffering from influenza than that "delusional melancholia" caused by loss of old customs would kill a Christianized one. During the very epidemic to which I referred above, one of the most important chiefs in the N.E. of Santo died of influenza. His friends naively went to the District Agent and asked to be allowed to murder certain natives in a neighbouring village who had caused their chief's death by magic!

Roberts does not hesitate to assume a causal connection between the retention of the old custom of head-hunting in Malaita in the Solomons and a flourishing population, and much of what he writes is in the same vein. Yet we should undoubtedly regard a sociologist as leaving the realms of science for those of mysticism if he were to draw any conclusions about fluctuations in the numbers of our poorer classes from their having sufficient virility to carry through a general strike. It appears to me that argument of this sort is clearly inadmissible. Roberts pushes it to extremes when he tries to account for the *increase* in population among the Europeanized, lazy, vicious Wallis Islanders by saying that they must have "a certain spirit or tenacity which cannot be analysed," but which nevertheless "is the root of the problem"!

Although I do not think that the loss of old customs in certain of the villages causes depopulation, I very much regret it nevertheless.

Lassitude Due to Abundance of Food.—Lassitude is supposed to have the same effect as the apathy discussed above. Roberts says that the natives of part of Dutch New Guinea are dying out on account of the prevalence of the sago palm, because this plant supplies them with abundance of food with the very minimum expenditure of energy. The same argument applies against this theory as against the loss-of-old-customs theory. The question hardly arises in Santo, for although the country is so fertile that the natives have not got to work hard to provide

sufficient food, nevertheless they are keen agriculturists, with even a primitive irrigation system in some places, especially on the west coast.

Loss of Power by Chiefs.—Speiser (7) lays considerable stress on this, but the power of the chiefs is still great in the heathen parts, where there has been enormous depopulation.

Intertribal Wars.—Nearly always there are vendettas in Sakau, where the powerful chief, Dhingaru, has for decades been the enemy of Natau in the north, and Tevor (till his recent death) in the south; while the intervening villages support sometimes one, sometimes the other side. But no pitched battles take place. When a man is killed on one side, a man must be killed on the other to avenge him, for otherwise the dead man remains permanently in the natives' purgatory: and so it goes on. But months or years may intervene before a man is avenged, so that the population is hardly affected.¹

Lack of Selection.—Roberts thinks that "the elimination of the unfit in their constant warfare" had a good effect upon the Maoris. This cannot apply in Santo, where anyone may be killed by a shot in the back when he least expects it, to avenge the death of someone who has been killed by a member of his village. His fitness or unfitness does not influence his chances of death from this cause.

Firearms.—All the heathen of Sakau carry rifles (mostly Sniders), and though bullets are not plentiful, there are enough to go round. A Sakau heathen never leaves his village without his rifle. These rifles are used for shooting one another and nothing else. But, as explained above, the number of deaths is small. Probably it was as great when clubs and bows and arrows were used for the same purpose, for they are nearly always used at point-blank range, at which the more primitive weapons are also effective. The rifles were smuggled into the island during the nineteenth century.

Recruiting.—The natives recruit for work on plantations very little nowadays. Since the times of the scandalous "black-birding" of natives for the Queensland sugar plantations, hardly any natives have left the group. But some consider that recruiting for work on plantations within the New Hebrides causes depopulation, owing to natives not wishing to have children on plantations. This I believe not to be the case in Santo. Several pregnant women have come to Mr. T. O. Thomas's plantation at Hog Harbour particularly to bear children, having heard of many successful deliveries there.

¹ A few months after I left rather serious fighting broke out, and one of the chiefs of highest rank was shot at Dhingaru's instigation. Dhingaru was promptly shot in retaliation. No single man being considered of sufficient importance to atone for Dhingaru's death, it is supposed that many will be killed.

Endemic Diseases.—Buxton (1) considers that malaria is quite an important cause of the depopulation of the New Hebrides, but my own experience, as well as that of those with whom I have discussed the matter in Santo, is opposed to this belief: for although certainly it is very prevalent, it does not appear often to be lethal. Nearly every native contracts yaws, usually in childhood, and this disease and malaria probably reduce the resistance to other more dangerous ones.

Introduced Diseases.—Undoubtedly introduced diseases constitute a very important cause of depopulation. Even Roberts, who pins so much faith to psychological causes, thinks that introduced diseases are very important in the case of the New Hebrides. Influenza, dysentery, measles and tuberculosis probably cause most deaths. In the villages of Wus and Sauriki, situated close together on the west coast of Santo, there were formerly 278 natives. Measles, whooping-cough and mumps were introduced from other islands in 1900 and 1902. Only 32 were left alive, of whom many subsequently died of tuberculosis.¹ Other diseases are less common, but very destructive. At Tasiriki, on the west coast of Santo, there were between 70 and 80 natives in 1922. A man landed from another island with meningitis; 36 contracted the disease, of whom 33 died. The remaining three each lost the use of the left ear and eye, and one of them subsequently became mad.¹ In my own experience, which only extends over a year, influenza and dysentery (probably amoebic) have been the chief causes of death. No one with actual experience of death in the New Hebrides will attribute depopulation to "delusional melancholia."

The Tonkinese and Annamese who have recently been brought to the New Hebrides are probably responsible for certain epidemics which have not been identified.

Lack of Hygiene.—This cannot be regarded as a cause of depopulation in itself, for, of course, the natives had no better hygiene in the days when the island supported a very large population. But, as Mr. J. de H. Morel has pointed out to me, the introduced diseases require particularly careful attention to hygiene for their prevention, and thus it is only since the arrival of Europeans that hygiene has become important. In particular, the almost complete absence of ventilation in the houses, which are often crowded with people, must aid the rapid spread of influenza and measles. Dysentery, once introduced, could not fail to establish itself where flies have access both to faeces and food.

Breaking Down of Primitive Quarantine Barriers.—To some small extent the hostility of one set of villages to another may prevent the spread of disease in Sakau and formerly over most of Santo. But there has always been trade in pigs between islands and parts of islands, so that no effective quarantine barrier can be said ever to have existed.

¹ Information from Mrs. F. G. Bowie.

European Clothing.—In the heathen villages of Sakau the men wear a belt round the hips from which depends in front a strip of calico about 18 inches long and 6 inches wide, and behind a bunch of leaves (often crotons). Only careful examination shows that the women are not wholly naked. A fine thread passes round the hips, and to this is attached in front a strip of some monocotyledonous leaf, about $\frac{1}{2}$ inch to 1 inch wide and 6 inches long, which passes between the legs and to some extent hides the external genitalia though the *mons veneris* is only partly covered. It is held in position by the insides of the legs and does not protrude behind (Pl. XXIV, Fig. 1). In the Presbyterian villages, on the contrary, the men usually wear cotton trousers and vests and the women a cotton frock. It has been argued that the wearing of these clothes renders them liable to disease, as they do not change them when they get wet. I doubt whether this has been substantiated. No information exists, to my knowledge, which could throw light on the truth or untruth of this argument. Nevertheless, the native cannot fail to lose self-respect on changing from the dignified savage, justly proud of his or her physical development, to the hideously (and usually dirtily) clothed convert.

Unnatural Sexual Practices are probably not indulged in to any great extent, except on plantations.

Too Close Intermarriage hardly occurs, owing to the strict rules of exogamy which apply both in heathen and Christian villages.

Ill-treatment of Women.—It is true that women do nearly all the carrying of food from gardens to villages, even when pregnant; but I do not think that abortion is often thus caused. In some ways the men are (or were) more considerate than Europeans, for the evils of one pregnancy following too quickly on another are (or were) prevented by a *tapu* against cohabitation too soon after childbirth.

Female Sterility.—Probably a good deal of promiscuous sexual intercourse is indulged in by the young women. This is held by some to cause female sterility. It is difficult to appraise its importance as a cause of depopulation.

Abortion.—Here, without a doubt, we have one of the most important causes of depopulation in both heathen and Christian villages. It is obtained by drinking infusions of the leaves of *Dracaena* and other plants, usually on instructions from the husbands.¹ As a result, the number of children per 100 adult females is only 128 in Sakau and 126 in the parts of the rest of Santo studied, although more than 93 per cent. of the adult females of Sakau, and more than 96 per cent. of those of the rest of Santo are, or have been, married.² Why should the people of Santo want to have smaller families than formerly? Is it that the loss of old customs has caused them, as Rivers supposed, to consider it useless to bring up children to live as dull lives as they?

¹ Information from Mr. T. O. Thomas and Mr. W. Anderson.

² See Table 1, note 2.

Santo is a particularly suitable island for the study of the effects of the loss of old customs consequent on the advent of white people, for there are wholly Christianized coast villages on the one hand, and some of the least-tamed natives of the New Hebrides on the other, second only to the "Big Nambas" of Malekula in the retention of their savage ways. In place of the usual guesswork, a scientific study of the effects of loss of old customs on population can be made by comparing vital statistics in Christianized and heathen villages.

For brevity I will refer in the sequel chiefly to Sakau, though the conditions are similar elsewhere.

In the whole of Sakau there are only seven Europeans, all living within a quarter of a mile of the coast. Of these, only two at all commonly go more than half a mile inland. The natives from heathen villages quite close to missionaries' or traders' houses often come to the coast to get medicines or exchange food-stuffs for knives, tobacco, calico, etc., and occasionally their villages are visited by a missionary. As one goes further inland one comes to villages like Lowerie, which have a visit from a white man perhaps a dozen times in a decade. Others, such as Yekul, are visited less often. Others have been visited only once before by a French exploring party. Others again (*e.g.* Tungwi) have never been visited by a white man except myself. In these inland villages the children have never seen a white man before, and the women seldom. The women fly, shrieking, at one's approach. Perhaps one of the men has worked on a plantation before, but has gone back to his old life completely. The houses are built as they always have been—usually about 10 yards long, 5 yards wide, and 7 feet high in the middle, the roof sloping right to the ground at each side (there being no walls). A few movable bamboos fill up a narrow entrance at one end—the only opening. At Tungwi I found remarkably primitive huts. In the largest of all, the men's club-house, I could not stand upright, even in the middle, and *the roofs of the other houses were lower than my shoulder*. Cooking is achieved by placing stones in a fire, raking out the fire, arranging the food (tied up in leaves) among the hot stones, and covering everything over with leaves to retain the heat. Baskets, bows, wooden pudding-platters, rope, rude beds—these and other household necessities are all of native origin. When I slept in these houses I made a careful inventory of every article within them, and classified them as of native or European origin. I have not space to print these lists, but they show clearly what little European influence there is. The chief European articles are muskets, knives and wire tips to arrows, with occasionally a tin or a bottle. As far as food and shelter are concerned, the heathen of Santo are practically unaffected by the white man.

I found also that the old social customs are retained. As before, the men have "club-houses" in which no woman may ever tread. Authority is in the hands of chief¹ of various ranks, who rise, by pig-killing ceremonies, from the

¹ Anthropologists sometimes object, without sufficient reason, in my opinion, to the use of the term "chief" in this connection.

grade of *nevok*, through those of *vonere*, *vūriar* and *vuriar*, till finally a few reach the highest grade of *vūster*. At each pig-killing a definite number of male and hermaphrodite pigs is killed, and a night-long dance takes place. I have witnessed one of these ceremonies, at Yekul, and can testify to the wild abandon with which it was carried through by a couple of hundred savages. At Lowerie I saw the lower jaws of 101 male pigs all killed by the local *vūriar* in the course of his rises in rank, as well as his splendidly fenced and weeded croton-garden, whose sole purpose is to provide leaves for use in his next rise. At Lowerie, also, the youths are still taught to fight with special curved sticks of casuarina, and are not initiated to manhood till they are proficient. Polygyny still exists, but is not common owing to the shortage of women. In heathen Sakau there are only 110 wives per 100 husbands. The great *vūster*, Dhingaru, has five wives. The clothing of the people and their vendettas have been described earlier in this paper. The clothing (or rather the nakedness) of the women has not changed. The men, however, have given up the strip of native-woven cloth, the beaded threads round their loins, and the extraordinary spindle-shaped block of wood on the buttocks (Pl. XXIV, Fig. 2). Their interest in the relationship of each person to every other person in his or her village, and their complicated classificatory system of describing it, together with the system of exogamy which is its basis, are as important parts of their culture as ever. In a word, the heathen of Sakau are hardly affected by the existence on their coasts of a few Europeans, except that the men carry muskets and wear a short strip of calico instead of a native-woven cloth. As Buxton (1) says, "in the interior of Santo . . . the people are still in a state of primitive savagery, just as they were centuries ago."¹

In the Christian villages, on the contrary, the life is in great part changed. The natives may see a white man nearly every day of their lives. They buy pots and pans for cooking and eating. Their houses often have walls. A men's "club-house" exists, but women are said to have entered it. There is no chief-making, no dancing, no polygyny, no vendetta. Relationship is still calculated in the old way, and the same exogamy still prevails (though far more exclusive than the requirements of Christianity). The clothes worn have already been described. Instruction is given in reading, writing and arithmetic, and religious services are held on Sundays and other days. In a word, the European influence is very great.

Now, if it were the loss of old customs that caused natives to wish to have small families and to secure their object by abortion, one would certainly expect to find smaller families in Christian than in heathen villages. The facts are given in Table 3. The fertility is shown as the number of children per 100 adult women. In Christian Sakau the number is 164; in heathen Sakau only 120. In the rest

¹ When, a few months after I left Sakau, a *vūster* was shot at Dhingaru's instigation, the dead man's two wives hanged themselves at once in accordance with custom.

of Santo the same condition holds. In the Christian villages examined there were 171 children to every 100 adult women: in the heathen only 79. *It is not loss of old customs that is causing the people of Santo to limit their families by abortion.*¹

TABLE 3.—*The Number of Children per 100 Adult Females.*

(Port Olry and Ladhi Island are not included, as being of mixed and doubtful religion.)

—							Heathen villages.	Christian villages.
Sakau	...	...	...	...	...	...	120	164
Rest of Santo	...	...	...	...	...	...	79	171

TABLE 4.—*Sex-ratio.*

(Number of males to 100 females.)

—					Young.	Adult.	Whole population.
Sakau...	..	...	..	...	169	155	159
Rest of Santo	...	...	...	...	141	102	115

TABLE 5.—*The Sex-ratio of Children in Heathen and Christian Villages.*

(Port Olry and Tavunemala are not included in these figures as being of mixed religion.)

—							Heathen villages.	Christian villages.
Sakau	...	...	...	...	...	...	172	135
Rest of Santo	...	...	...	...	...	...	141	141

Why, then, should they wish to limit them? I think their reason must be the appalling number of deaths caused by diseases brought in by Europeans. The people think it useless to produce children, who will only die in epidemics. In this sense there is apathy. The state of affairs was very clearly put to me by a native woman on another island. When I questioned her about the recent deaths in her village, she indicated all the children who were sitting round about her and

¹ My figures definitely disprove Speiser's statement that "... the birth-rate is certainly no better [in Christian villages] than in the inland villages." It must be remarked, however, that Speiser says frankly, "... in weighing the value of my observations it must be remembered that there are no trustworthy statistics. They must be accepted as ... personal views ..."

said. "Close up all piccaninny here 'e die finish" (all these children will die soon). This feeling, that it is useless to produce children who will only die, is, I believe, the cause of the small families in Santo. Probably it is on account of the medical aid given by missionaries that the people in Christian villages do not feel quite so hopeless, and therefore, by procuring abortion less often, have rather larger families.

Infant Mortality.—I have no figures giving annual infant mortality for any part of Santo, nor any evidence as to whether influenza, measles and dysentery are more lethal to children than to adults in the New Hebrides. Epidemics certainly kill large numbers of children. The custom of feeding babies, whose mothers are unable to suckle them, on chewed yam and sweet potato is probably harmful. I doubt whether carelessness or harsh treatment are often to blame for infant deaths. New Hebrideans are much attached to their children and show very real grief at their death (as opposed to the ceremonial wailing in which they have to indulge on the death of more distant relations). In the heathen villages parents do not beat their children, but a higher civilization has brought this custom to the Christianized ones.

Infanticide.—In heathen Sakau the sex-ratio of children is 172, while in the Christian part it is only 135, which might be considered to point to female infanticide in the heathen part. This question is touched on in the next section. I did not hear of the deliberate killing of a single child.

High Sex-ratio.—This I believe to be an important factor in the depopulation of Sakau, where I found the ratio to be 159 males to 100 females (*see* Table 4).

I think this is the second highest sex-ratio of any people in the world at the present time. The reader should remember that Great Britain, Ireland, France, Belgium, Holland, Denmark, Norway, Sweden, Germany, Austria, Hungary, Russia, Switzerland, Spain and Italy all have sex-ratios of less than 100 males to 100 females. I know of only four civilized or semi-civilized countries (China, Russian Turkestan, Korea and the Caucasus) which have a ratio higher than 100. Turning to uncivilized races, the peoples of Papua and Melanesia probably have the highest sex-ratios (*i.e.* the greatest excess of males) of any: yet out of 36 censuses taken in other parts of the New Hebrides (1916-24), the Bismarck Archipelago (1921), the Solomon Islands (1921) and N.E. New Guinea (1921), only six were above 140, and only one was higher than Sakau.¹ The Anir Islands in the Bismarck Archipelago constitute the exception, with a sex-ratio of 161 in a population of 704. In past times the Todas of the Nilgiri Hills, in India, exceeded even this figure by intensive female infanticide.

In order to show the effect of high and low sex-ratios on population, let us imagine three uninhabited islands, each simultaneously discovered and colonized

¹ For details, *see* (1) and (4).

by fifty men and fifty women, aged about twenty years. Let us assume the islands sufficiently large, fertile and healthy to hold large populations; that all the female colonists and their female descendants marry: that they produce on the average three children each (not counting abortions, still-births and infant deaths): that the average age of child-bearing is thirty years: that two-thirds of the children of both sexes live to attain twenty years: and that the average age at death of those who survive to twenty years is forty-five. Further, let us suppose that a census is taken on each island every thirty years.

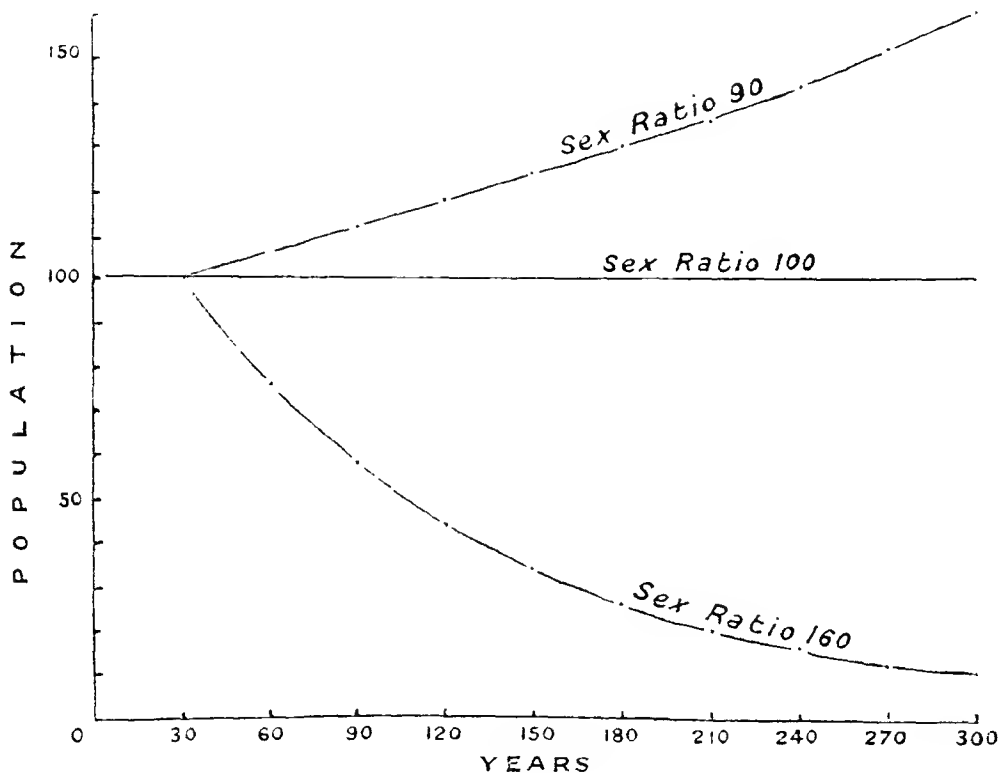


FIG. 2.—GRAPH SHOWING THE EFFECT OF SEX-RATIO ON POPULATION.

In the case of the first island, let us assume a sex-ratio (of children and adults) of 100 males to 100 females: of the second, only 90 males to 100 females: of the third, 160 males to 100 females, approximately the sex-ratio of Sakau. The graph (Fig. 2) gives the censuses taken on each island every thirty years. The points are joined to aid the eye.

In the first island, with equal numbers of males and females, the population remains unchanged. In the second, where polygyny has been going on, so that no woman has failed to produce children from lack of a husband, the population

has grown in 300 years from 100 to 160.¹ But in the island where the sex-ratio is 160, the population is reduced in the same period to 10, one-tenth of what it was ! No race could fail to decline with such a sex-ratio, unless the birth-rate were very high.

Pitt-Rivers (4) thinks that an increase in sex-ratio may cause decline in quite another way. He attributes the decline to the increase of monogamy attendant on increase in sex-ratio, pointing out that monogamy results in loss of freedom from cohabitation by pregnant and lactating women and in an increase in promiscuity, which he supposes to cause sterility. The objection to this theory is that monogamy is often correlated with an increasing population. Mr. T. O. Thomas suggested to me that increasing monogamy, in a people accustomed to polygyny, might result in depopulation in another way. When a man has several wives, he does not object to one or more of them becoming pregnant : but when he has only one, he is denied the domestic, agricultural and sexual services of a wife while the latter is in the later stages of pregnancy and at the beginning, at least, of lactation, and therefore encourages abortion. He thinks that abortion is always procured at the instigation of the husband.

Colonel Marshall (quoted by Pitt-Rivers (4)) invented an ingenious, but, I think, untenable, theory to account for the high sex-ratio *at birth* of the Todas, regarding sex-ratio as an inherited character and supposing that some sort of selection of male-producing families took place. Great preponderance of female deaths would account for the high sex-ratio of Sakau, and for this reason, in making the censuses of Hog Harbour, Lwata and Watvagol (three Sakau villages), I listed the dead brothers, sisters, husbands and wives, and all absentees, in addition to the present inhabitants. Unfortunately these three villages were unsuitable ones for the purpose, for the sex-ratio in them was not nearly so great as in the rest of Sakau. The figures obtained (13 dead boys to 15 dead girls, and 25 dead men to 23 dead women) show that there has been little differential mortality in these villages. Whether there is in the rest of Sakau, I cannot say ; but it would be a most strange thing if there were an excess of female infant deaths, for an excess of male infant deaths is the rule all over the world.

The ratio would be understandable if there were any evidence of female infanticide, but I never heard of a case. I cannot say that it does not exist, for it is a custom which would be likely to be kept secret. Nevertheless, it seems rather unlikely that fathers should kill their daughters, since they are of such great service as labourers, and later bring such high prices in pigs when bartered to husbands. I have heard of as many as twenty pigs being given for a wife, the largest being an hermaphrodite with fine tusks, worth £24 in our currency.² Another point is

¹ It is obvious that in a monogamous country any deviation of the sex-ratio from 100 in either direction must result, other things being equal, in a reduced population or a reduced rate of increase.

² Information from Père Ardouin.

that in Hog Harbour, where there is certainly no infanticide, the sex-ratio of children is 135. This is considerably less than that of Sakau as a whole, but it proves that female infanticide is not the whole cause of the high sex-ratio, if indeed it is one at all. In the rest of Santo the sex-ratio of children is precisely the same (141) in heathen and Christian villages, so that one cannot suppose that female infanticide is an important factor (see Table 5).

A serious point is that, both in Sakau as a whole and in the parts of the rest of Santo studied, the sex-ratio of children is considerably higher than that of adults, as though the condition were getting worse. (This does not apply to the Christian village of Hog Harbour.)

Cannibalism certainly still exists. Between my two visits to Santo in 1923 and 1927, a white man was killed and the flesh of his legs divided among several villages and eaten. But since the natives do not kill people in order to eat them, but only eat them when they have been killed for other reasons, cannibalism does not affect population.

Tinned Meats.—Roberts lays stress on tinned meats as a source of depopulation. I do not know whether he supposes that they kill people outright, or render them less fertile, or increase "delusional melancholia." They are little used in Santo, even in Christian villages, and practically not at all in heathen ones. I have never heard of a case of ptomaine poisoning in Santo resulting from meat being left in the opened tin before being eaten.

Alcohol is sold (illegally) by the French planters to natives working on their plantations. Since the vast majority of the natives of Santo do not work on plantations, alcohol cannot be an important factor in depopulation. Little, if any, finds its way to heathen villages.

Drugs.—The only native intoxicant of the New Hebrides is kava. Although wild kava grows abundantly as a weed in clearings, I have not seen it cultivated in Santo, and little or none is drunk. No intoxicants other than alcohol have, to my knowledge, been imported into Santo for sale to the natives.

Lack of Education, mentioned as a cause of depopulation by Lambert, can hardly be so considered, when it is remembered that there was no education in the days when the population was flourishing!

I may summarize this section by saying that I believe that depopulation in Santo is due to diseases brought by Europeans and to abortion, which is procured because the natives are depressed by the large number of deaths from these diseases. Malaria and yaws probably reduce the resistance to these diseases. In Sakau the high sex-ratio is a contributory cause.

A REMEDY FOR DEPOPULATION.

An experiment could be performed to test the conclusions summarized above. I am aware that the chances of its being performed are infinitesimal, since missionaries and planters, who disagree in everything else, would unite in condemning it. Further, nearly everyone will prefer well-tested methods, even when their very testing has proved their inadequacy, to what will be described as an impracticable scheme.

An island which has few or no white men on it and little or no land owned by whites should be selected for the experiment. Gaua, one of the Banks group, at the northern end of the New Hebrides Archipelago, would be suitable. If any man not a native were living on it, he should be compensated and removed. If anyone not a native held land on it, he should be compensated and his land given back to the natives. In the case of Gaua, this would not be expensive. When I visited the island in 1927 there were two Japanese and no whites on it. A little land in a very bad state of cultivation belongs to a company which has no white resident representative. The island is roughly circular in outline, with a diameter of about 12 miles. There are supposed to be about 600 native inhabitants.

Every native temporarily resident on another island should be given the opportunity to return, and every native wishing to leave the island should be helped to do so. (I am inclined to doubt whether any would leave.) It should then be made illegal for anyone, native or not, to come within a mile of the island for twenty years, with the exception of a small party who would visit the island directly it had been thus quarantined. The party, consisting of a doctor and at least one other, would visit every part of the island. The doctor would not leave until everyone suffering from diseases brought in by whites was cured. (Tuberculosis patients would have to be excepted.) A careful census would also be made. They would then leave the island and not return till nearly twenty years later, when they (or more probably their substitutes) would investigate the health of the natives and make another census. If the effect were a markedly increased population, the quarantine might be renewed and a similar quarantine started on other islands. By that time all the planters on the remaining islands will probably have indentured labour from various parts of the world, so that they would hardly be affected by their recruiting grounds in the New Hebrides being cut down.

The quarantine would have to be preserved by occasional unexpected visits from a government vessel, and a system of heavy punishments for offenders. The District Agents would also have to make sure, when witnessing the "mark" made by natives when recruiting for plantations, that they were not recruited from the island concerned.

I do not think that the expense of the experiment can be counted against it, for there is apparently a large amount of money available for the solution of New



FIG. 1.—WOMEN OF HEATHEN SAKAU.

(Photos by Mr. J. de H. Moore)

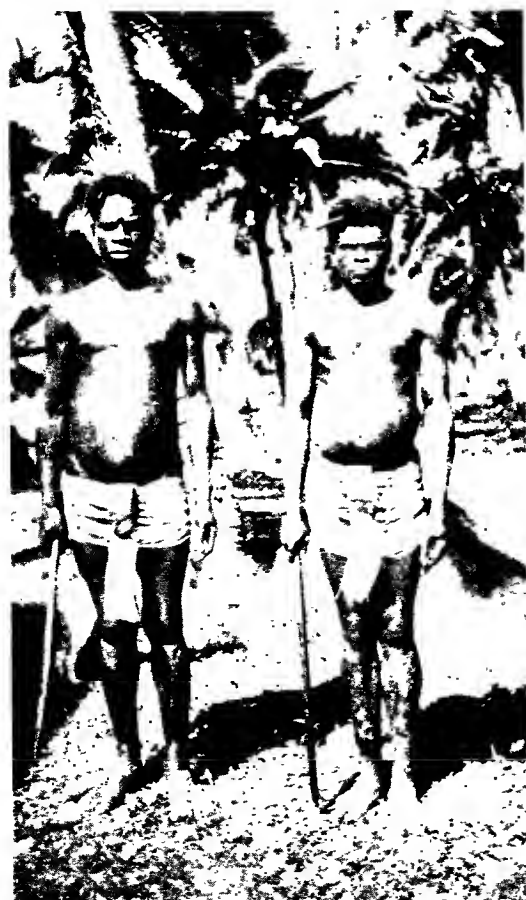


FIG. 2.—MEN OF SAKAU, SHOWING FORMER CLOTHING, DISCARDED IN FAVOUR OF A CALICO STRIP ABOUT TWENTY-FIVE YEARS AGO.

(Photos by Mr. J. de H. Moore)

Hebridean problems. Recently an enormously expensive commission visited the islands to further the interests of the British planters.

Some will object that it would be unfair to the natives of the quarantined island to deny them knives, calico and tobacco. A moment's thought rules out this objection. How can one weigh the petty advantage (if advantage it be) of these commodities against all the suffering from introduced diseases? The necessity to make cutting instruments and to weave cloth for themselves would add greatly to the interest of their lives. The arrows they use now are tipped with wire. If they were quarantined, skilled craftsmen might fashion again the beautiful arrows that used to be made on Gaua. I have several of these, each tipped with human bone, and with the shaft formed of the heart of the tree-fern in front and of cane behind, each part being most skilfully lashed to the next with what appears to be coco-nut fibre. Many native arts and crafts which are now tending to decay would be revived. The experiment would be intensely interesting to the anthropologist.

The Missions would, of course, regard it as very unfair that they should be denied access to islands where some of the natives are converts. But I consider that the most imperative need of the New Hebrideans is not a new religion, but their old health; and when the white man's crime of nearly blotting out a primitive but delightful race has to some extent been atoned by the restoration of their population, then, if ever, the time has come to try to substitute a new code of morals, a new religious history, and a new set of superstitions for the old. Some of the missionaries do splendid work in combating disease, but the most serious of the diseases which they combat were and are brought to the New Hebrides and spread from island to island by their vessels and those of other white men. Durrad, himself a missionary, says (2): ". . . the *Southern Cross* [the vessel of the Melanesian Mission] is one of the chief agents in the distribution of pneumonia germs. This was noticed long ago by the natives." His description of terrible outbreaks of pneumonia and influenza, with great mortality, following upon visits from this vessel, makes shocking reading. He describes how Bishop Patteson visited the island of Mota one day and landed a party of natives whom he had brought with him on the *Southern Cross*. He found the inhabitants in good health. In a fortnight he returned. "A great mortality was going on, dysentery and great prostration of strength from severe influenza. About twenty-five adults were dead already." In the next two and a-half days "twenty-seven adults died, fifty-two in all, and many, many more were dying emaciated, coughing, fainting." Comment would be superfluous.

To summarize this section, an island should be freed from all white influence and absolutely quarantined for twenty years: and if the result were a markedly increased population, the quarantine should be renewed and extended to other islands.

SUMMARY.

1. Vital statistics were collected of all the natives of the eastern half of Santo, and of 249 of the natives of the western half.
2. The total population of Sakau (the N.E. peninsula of Santo) is 691; of S.E. Santo, 229.
3. The sex-ratio in Sakau is 159 males to 100 females.
4. The number of children per 100 adult females is only 128 in Sakau and 126 in the rest of Santo, although nearly all the adult females are, or have been, married.¹
5. The number of children per 100 adult females is greater in Christian than in heathen villages, both in Sakau and in the rest of Santo.
6. *Depopulation has been very great where there has been, and is, practically no white influence other than the spread of disease.*
7. Introduced diseases are probably the chief cause of depopulation.
8. Abortion is another important cause of depopulation. It is probably procured on account of the uselessness of bringing up children who will only die of introduced diseases.
9. In Sakau the high sex-ratio is a contributory cause of depopulation.
10. Yaws and malaria probably lower the resistance to the introduced diseases.
11. Loss of old customs does not cause depopulation.
12. An island should be freed from all white influence and quarantined for twenty years to find the effect on population.

¹ See Table I, note 2.

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 - (5) Rivers, W. H. R. (edited by). *Essays on the Depopulation of Melanesia.* Cambridge University Press. 1922.
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 - (7) Speiser, F. *See* (5).
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[illegible]

1. H. Hefelich: P. Presbyterian; R.C. Roman Catholic; D. Doubtful.

² Those who have recently come in a body from the N.W. Peninsula to Port Oby are omitted.

Temporary antibodies included.

• At Hog Harbour. Only the Sakau natives working on the plantation are included. (The Hog Harbour natives working on the plantation are entered under Hog Harbour.)

⁶ No native would guide me to Ladlul, owing to the warlike nature of the chief, Dhiugarn. The inhabitants were combated by a native who had been there recently.



THE EVOLUTION OF THE HUMAN RACES.

[WITH PLATE XXV.]

The Huxley Memorial Lecture for 1928.

BY SIR ARTHUR KEITH, M.D., D.Sc., LL.D., F.R.S.

ON the evening of Sunday, January 5th, 1870, Prof. Huxley made his way to St. George's Hall, Langham Place, to address an audience on "The Forefathers and Forerunners of the English People." The subject had been forced upon him by the unhappy state of affairs in Ireland: they were then going from bad to worse—demands for separation were becoming ever more clamorous and violent. Claims for separation were based on a difference in race. Huxley had given these claims serious consideration and proceeded to lay his conclusion before the audience assembled in St. George's Hall. Not any of the four nationalities of Britain he declared, could claim separation on the score of a difference in race: in each and all of them the same two racial elements were to be observed—the Xanthochroi or fair element and the Melanochroi or dark element: the difference between the population of Ireland, Scotland, Wales, and England was only one of proportion—the proportion in which these two races were blended. In his peroration he declared: "If what I have to say in a matter of Science weighs with any man who has political power, I ask him to believe that the arguments about the difference between Anglo-Saxons and Celts are a mere sham and delusion."

THE ETHNOLOGY OF BRITAIN.

It was a revolutionary conception of the racial constitution of the British people which Huxley expounded on this Sunday evening: before taking it to a learned society he "tried it out" on a lay audience. Ten years previously, in 1860, when gathering evidence bearing on *Man's Place in Nature*, he submitted his case to working-men in St. Martin's Hall before carrying it before a scientific tribunal and ultimately publishing it in book-form. He adopted the same practice on the present occasion; he stripped away the foliage of scientific terminology from his case and presented its bare boughs in all their nakedness to his audience. Then, four months later—May 10th, 1870—he laid the evidence he had gathered and the conclusions he had reached, "On the Ethnology of the British Isles," before the Ethnological Society, of which he was then President. Finally, in 1871, he published his completed case in the *Contemporary Review*, under the title "Some Fixed Points

in British Ethnology." This latter contribution to Anthropology is memorable, not only because it contains Huxley's matured conception of the racial stocks of Britain, but because it marks the end of his activity as an anthropologist. He was then in his forty-sixth year and at the height of his wonderful career.¹

THE IMPLICATIONS OF EVOLUTION.

Let us look at what Huxley considered "fixed points" in British Ethnology, because, as we examine them there will emerge the subject I want to discuss with you to-night in his memory. Huxley approached the problem of human races with the eye of a zoologist: he applied to men and women the methods which guided him in the case of dogs and pheasants. He held that men and women, who claim to be of a separate race, must be so marked in feature of body that each and all of them can be distinguished in a composite crowd. Applying this zoological method to the people of the British Islands, Huxley found evidence of only two recognizable races: the Melanochroi—the Iberian or Mediterranean race; and the Xanthochroi—the fair, or, as we would now say, the Nordic, race. As our four nationalities—English, Welsh, Scottish, and Irish—were blends or compounds of these two races, nationality, he held, had no place in any zoological system. A nation, in his opinion, was a congeries of people held together by territory, speech, politics, and tradition, and could not, on scientific grounds, claim the status of a race.

Was Huxley right? Must every man, woman, and child of a nation resemble each other so closely, and differ from all neighbours to a recognizable degree, before that nation can rank as a race? Or, after all, is the old political or popular conception of a race based upon a biological truth which escaped Huxley's sharp eye? If evolution is true and is working out its effects in the world's population of to-day, then we ought to find human races in all stages of differentiation—from the least

¹ By a strange coincidence, Huxley's activities as an anthropologist fall between two important events in the life of Darwin—the publication of the *Origin of Species* in 1859 and the appearance of the *Descent of Man* in 1871. As stated above, his "Fixed Points in British Ethnology" marked the end of anthropological activities, although his "swan-song," *On the Aryan Question*, did not appear until 1890, five years before his death in 1895.

I have been indebted on this, as on many previous occasions, to the *Life and Letters of Thomas Henry Huxley*, written by his son, Dr. Leonard Huxley (London, 1900). Huxley's chief contributions to Anthropology will be found under reference (1), but I regard the chapters he wrote for Laing's *Prehistoric Celtiness*, reference (2), as containing his best work on the ethnology of Britain.—(1) *Collected Essays* (1900), vol. vii. (2) *Notes on Prehistoric Remains of Celtiness* (1866), by Samuel Laing. (3) "Ethnology of India," *Journ. Ethnol. Soc.* (1869), vol. 1 (N.S.), p. 89. (4) "Ethnology of North America," *ibid.*, p. 218. (5) "On the Ethnology of the British Isles," *ibid.* (1870), vol. 2 (N.S.), p. 405. (6) "On the Geographical Distribution and the Chief Modifications of Mankind," *ibid.*, p. 404. (7) "Forefathers and Forerunners of the British People," *Anthrop. Rev.* (1870), vol. viii, p. 197.

degree, where only a small percentage carries the essential racial traits, unto the highest degree, where every member is recognizable at sight. Further, if we are right in supposing that mankind throughout the geological periods of its separate existence has been the subject of continuous evolutionary change, then we ought to find not only such completely differentiated races as Huxley had in mind but also forms which have passed far beyond the state to which zoologists apply the name race, breed, stock, or variety, and have reached the stage of structural differentiation to which they give the ascending term—species, genus, family. Such forms we now know. The question I propose to discuss with you then is : What do we know concerning the evolution of human races ?

THE EVOLUTIONARY CONCEPTION OF RACE.

The conception of race I am to place before you is more elastic, more evolutionary, than that formulated by Huxley in 1871. Let us apply this newer conception to the interpretation of the continental populations of the world. For this purpose we shall have to encompass the earth and note the number and distribution of races—or “persistent modifications” into which mankind has become divided. We cannot do better than follow in the footsteps of Huxley, for, to my way of thinking, the racial survey he made in the “sixties” of last century has never been surpassed in clearness and accuracy. Let us trace the chain of circumstances which led up to this survey. In 1862 Huxley was preparing the text of *Man's Place in Nature*, and had to determine the racial affinities of the only two skulls which were then acknowledged to be ancient in a geological sense—the Engis skull found in Belgium (1833) and the Neanderthal skull which had been discovered in Germany (1857). He had to search the races of the world to see if he could find amongst them counterparts of these ancient types. Thus, in 1862, at the age of thirty-seven, Huxley began a systematic study of human races : he thus became an ethnologist. How quickly and completely he seized the salient features of man's racial distribution will be seen from the following extract published in 1863 :—

“ Draw a line on the globe, from the Gold Coast in West Africa to the Steppes of Tartary. At the African end there live the most dolichocephalic, prognathous, curly-haired, dark-skinned of men—the true Negroes. At the other end there live the most brachycephalic, orthognathous, straight-haired, yellow-skinned of men—the Tartars and Calmucks. The two ends of this imaginary line are indeed, so to speak, ethnological antipodes.”¹

Having brought these two “ethnological antipodes” into the foreground of his picture, Huxley then proceeded to draw another imaginary line—one which

crossed the globe from Britain to Australia, passing through India and thus crossing his first imaginary line. This second line had a strange fascination for Huxley; at one end was his fair or Xanthochroid type, and at the other the primitive Australian aborigine. We find him in the following year, when preparing his account of the Muskham (Trent) skull, tracing its type along this line, finding cranial forms in Egypt and India which linked, by a graded series, the "River-bed" type of England with that of the Australian aborigine. Huxley's outlook on the world of mankind was new: to us it may seem orthodox, but to his contemporaries it was revolutionary. It was at this time, too, when investigating the Neanderthal and Engis skulls, that Huxley devised a new and precise system of cranial measurements for the detection of racial likenesses and differences—a system which has never been given a rightful trial.

HUXLEY'S MAP OF THE CHIEF MODIFICATIONS OF MANKIND.

Having become immersed in the study of human races, Huxley pursued his usual plan; we find him, in 1864, laying his matured knowledge before workmen in St. Martin's Hall, and then in 1865 publishing his final conclusions in the *Fortnightly Review*, under the title "Methods and Results of Ethnology." In his final scheme of 1865 he divided living humanity into eleven races, or, as he preferred to name such divisions, "easily distinguishable persistent modifications of mankind." Further, each of his races was restricted to a definite part of the earth, or was so restricted until recent centuries, and had been confined to their respective areas from a remote date. Let us run over the list of Huxley's primary divisions: (1) Australian; (2) Tasmanian; (3) Negrito—for which we may substitute the term "Pacific negroids," as "Negrito" has come to have a significance Huxley had not in mind; (4) Amphimesian—maritime peoples occupying the islands of the Pacific, Malay Archipelago, and part of Madagascar; (5) Native peoples of America, extending from Cape Horn to Labrador; (6) the Eskimo; (7) the Mongolian stock—stretching from Tibet to Japan and from Tonquin to Lapland—an enormous assemblage; (8) the Negro; (9) the Bushman. Finally came the peoples who occupy Western Asia and the whole continent of Europe: these he boldly divided into (10) Xanthochroi, or fair stock, in the northern zone; and (11) the dark, or Melanochroi, of the southern or Mediterranean zone. The peoples of Southern India were a source of perplexity, but finally he assigned them to his Australian division. [See Pl. XXV.]

HUXLEY'S CONCEPTION OF A RACE.

Let us look again at the test which Huxley applied when he established these eleven divisions—it was a zoological test; every member of a division must carry the traits distinctive of that division or race. If Huxley's eleven racial divisions

were as sharply defined as he assumed them to be, then, if a hundred nude individuals were taken from each division and all mixed together in a crowd, a competent ethnologist entering that crowd should be able to assign each individual to his or her proper race and place in the world. Such a race, one in which every member is recognizable at sight, has reached what we may call the 100-per-cent. stage in the scale of racial differentiation, or, to use an apt term coined by my friend Mr. Morley Roberts, it is a *pandiacritic* race. We should also find, if evolution is true, races in every stage of differentiation, from a zero point—an adiacritic state—to the full or pandiacritic state, unless it be true that races are produced, as Huxley was inclined to think, at a jump.

HUXLEY'S LATER VIEWS.

How are we to explain the facts depicted by Huxley in his ethnological or racial map of the world? By what process or processes have such divergent races as the fair European, the yellow Asiatic, the black African, and the brown Australian come into existence? Why are these types native to definite and distant areas of the earth's surface? Before we seek for light on these problems let us first ascertain if Huxley's map reflects a true picture of racial distribution as it was in early historic times. Were his eleven races truly pandiacritic? Were their boundaries as sharply circumscribed as his map shows? He himself came to the conclusion that his map required amendment, for, in 1870, when he returned to the subject of racial distribution in an address to the Ethnological Society, he reduced the number of his "chief modifications" to four—the Xanthochroid or fair type, the Mongoloid type, the Negroid type, and the Australoid type. We find him going back to his original conception—the existence of four "ethnological antipodes" or primary centres of racial differentiation.

Huxley amended his conception of racial distribution for several reasons. He began his investigations in the expectation that shape of skull would provide the chief criterion of race. In this he was disappointed: cranial characters, he found, were of subsidiary or secondary consequence. His Xanthochroid type might have a long skull or a round one: it was the same with the Mongoloid. He realized that the primary discrimination between human races must be made from surface traits—colour of skin and texture of hair. To these I would add the significant traits of the face, which are so hard to measure but which are so apparent to all.

THE AREAS OF RACIAL DISTRIBUTION SHADE INTO EACH OTHER

Huxley also realized that the areas of racial distribution had not the sharp outlines he had originally given to them. His Xanthochroi are to be found in their pure state only in North-West Europe: his Negro type only in that part of Africa

of which the Congo is the centre: his pure Mongoloid type only in Central and Eastern Asia: his Australoid type in Australia. If we join the Xanthochroid centre in North-West Europe to the Negro centre in Africa, by a line which runs across Europe in the direction of Egypt and then along the Nile to Equatorial Africa, this line will cross such a graded series that it will be hard to say where the European type ends and the African type begins. Or, if instead of turning our line towards Africa, we let it run to India and then on to Australia, we shall find one or two breaks, yet the series of races crossed is such as bridges the gap between the fair European and the brown Australian. If, on the other hand, we take our stance in Mongolia, no matter in which direction we go, we shall find the type change and become less pure as we pass towards the periphery. If we go southwards, we shall find the skin darken and the facial features alter, until we reach the Pacific, when it fades into Polynesian, Negroid, and Australoid. It is only when we leave Mongolia and travel towards India or Russian Turkestan that we meet with anything approaching a sharp racial frontier. Why this should be so I shall seek to explain later.

HYBRIDITY AS AN EXPLANATION OF RACES.

Assume, then, that the sketch just given of man's racial distribution is approximately true, how far does our present knowledge help us to explain it? We have to explain (1) how our four primary types or races have come into existence: (2) how the intermediate or graded types have been produced. Now, if we assume the existence of four primary types—Australoid, Negroid, Mongoloid, and Xanthochroid—settled in the four parts of the world where they now attain their greatest degree of differentiation, it becomes possible to explain all the intermediate types, which occupy intervening zones, as hybrids of varying degrees, produced by intermingling of the four primary types. Huxley himself was drawn towards hybridity as an explanation of intermediate types. For instance, in his final classification he excluded the Melanochroi as a primary division—the Melanochroi which includes the peoples which extend from India to Ireland and occupy Northern Africa and Southern Europe. Now we have historical evidence that there has been an intermingling of peoples, and the majority of anthropologists still explain intermediate racial types as hybrids produced by degrees of crossing. Before we accept this explanation let us turn to the much more important problem of the primary types—How were they produced?

THE MACHINERY OF RACIAL EVOLUTION.

In the present century light began to dawn on the manner in which new racial types of mankind arise. We have now convincing evidence that the growth of the body and the differentiation of its racial traits are controlled, to a greater or less extent, by a material mechanism centred in certain glands—the glands of internal

secretion.¹ These glands produce substances—hormones—which have growth-controlling properties. The wonder is that we did not recognize the existence of a growth-regulating mechanism long ago, for from remote times it has been known that the removal of the male sexual glands in youth profoundly alters the growth of a man's body. This operation produces a being having all the appearance of a new racial type. We have the advantage over Huxley in possessing definite proof that the testis not only serves as a laboratory for spermatozoa, but also secretes and sets in circulation a substance—or substances—which alter stature, length of limb, contour of bone, strength of muscles, size of neck, size of jaws, shape of nose, modelling of forehead, growth of hair, and texture of skin. Now these are, in the main, just the characters wherein one race of mankind differs from another. The eunuch's body gives us a glimpse into the depth, power, and complexity of the growth-controlling mechanism which shapes the human frame. Clearly, if we are to understand the production of racial types we must first master the system of growth-control.

Our knowledge is only beginning: so far we have been dependent on experiments produced by accident and by disease. Disease has revealed how potent is the action which the small pituitary gland exerts on growth. In that particular disorder, known as acromegaly, the pituitary gland is always found to have undergone an irregular overgrowth. Men and women who become the subject of acromegaly have their bodily features so transformed in a year or two that even acquaintances will fail to recognize them: in such cases we see a new physical type being produced under our eyes. The features which become altered—hair, skin, chin, nose, forehead, chest, hands, and feet—are just those which undergo racial differentiation. Giantism is a disease of growth: always we find in these monstrous beings clear evidence of a

¹ The enunciation of the hormone theory by Starling and its application to biological problems, particularly to those of race-differentiation, will be found under the following references:—Professor E. H. Starling: "The Chemical Correlation of the Functions of the Body," *Lancet* (1905), ii, p. 339. J. T. Cunningham: *Hormones and Heredity* (1921). Professor L. Bolk: "On the Origin of Human Races," *Proc. Konink. Akad. v. Wetensch.* (1927), vol. xxx, p. 321; "On the Characters of Morphological Modifications in Consequence of Affections of the Endocrine Organs," *ibid.* (1921), vol. xxiii, p. 1; "On the Problem of Anthropogenesis," *ibid.* (1925), vol. xxix, p. 1; *Das Problem der Menschwerdung*, Jena, 1926. Professor Charles R. Stockard: "The Significance of Modifications in Body Structure," *Harvey Society Lecture*, New York, 1921 (see also *Publications of Cornell University Medical College*, 1923-4, vol. x, No. 2); "Human Types and Growth Reactions," *Amer. Journ. Anat.* (1923), vol. 31, p. 261. S. M. Shirokogoroff: *Process of Physical Growth among the Chinese*, Shanghai, 1925. Sir Arthur Keith: (1) "Acromegaly," *Lancet* (1911), i, p. 993; (2) "Progeria and Atlerosis," *ibid.* (1913), i, p. 395; (3) "War as a Factor in the Evolution of Human Races," *St. Thomas's Hospital Gazette* (1915), vol. xxv, p. 153; (4) "Certain Factors concerned in the Evolution of Human Races," *Journ. Roy. Anthropol. Inst.* (1916), vol. xlv, p. 10; (5) *Race and Noteworthiness from an Anthropologist's Point of View*, Robert Boyle Lecture, Oxford, 1919; (6) "The Differentiation of Mankind into Racial Types," *Rep. Brit. Assoc.* (Bournemouth), 1919; *Lancet* (1919), ii, p. 753; *Nature* (1919), vol. cii, p. 391; (7) "The Evolution of Human Races in the Light of the Hormone Theory," *Bull. Johns Hopkins Hosp.*, 1922, vol. 33, pp. 155, 195; (8) "The Adaptational Machinery concerned in the Evolution of Man's Body," *Nature*, vol. cxii, p. 257.

disordered condition of the pituitary gland. The more we know of this small gland the more complex do we find its rôle in growth. Under certain conditions the disordered pituitary produces a eunuchoid type of body—one reminiscent of certain tall races such as the Nilotic negroes. Compression of the pituitary leads to dwarfism. The pituitary is only a part of the bodily machinery concerned in racial differentiation.

The thyroid gland has also an influence on growth: its secretion is known to hasten metamorphosis: it exerts an action—direct or indirect—on the growth of skin and hair. If the thyroid fails in its action then there results a characteristic type of individual—a distinctive physical type—that of the cretin. The cortex of the suprarenal gland is also concerned in the regulation of growth. Sometimes a male infant develops all the characters we associate with sexual maturity; in such children there is always found a tumour-like enlargement of the cortex of the suprarenal gland. The same kind of tumour when developed in a young woman causes a physical and mental change towards the male; when such a tumour is excised the patient regains her proper sexual markings and feelings.

EXAMPLES OF ENDOCRINE INFLUENCE.

I have said enough to show you that we may yet hope to understand the machinery which is concerned in the production of new racial types. Let us, in a passing way, test our knowledge on a few concrete examples. What light can we throw on the origin of Huxley's *Xanthochroi*—the fair people of Northern Europe? We presume, as John Hunter did, that primitive man was pigmented. We are justified in making this presumption by the fact that the most primitive type of man now living—the Australian aborigine—is dark brown, and because the anthropoid apes, which have the nearest structural kinship to man, are pigmented. We seek to explain fairness—the absence of pigment—as a recently acquired character. We know that the suprarenal body is concerned in the formation of pigment, but we have no evidence as yet of any structural difference between the suprarenal of a negro and that of a Scandinavian. We are just beginning to realize that light can produce certain physiological effects when it penetrates the skin; the amount of pigment must help to screen the nude bodies of those exposed to a tropical sun. Our present knowledge justifies us in supposing that a fair race, if evolved, could have an advantage only under temperate conditions such as Northern Europe now provides. Another line of investigation helps us to understand the developmental processes concerned in the elaboration of a fair race of human beings. The first nine months of human existence are spent in the womb where light does not penetrate and pigment is not required. The negro baby has only reached a brown stage at birth: two months earlier, its skin is not darker than that of a Southern European: still earlier in fetal life its skin is as little pigmented as that of the Northern European. The negro child passes through all the stages which lead from the lowest to the highest degree in the scale of pigmentation, as do the young of the

gorilla and chimpanzee. In the fair European the process of pigmentation is arrested at one of the earlier foetal stages, in other races we find arrest at later and later stages. The fairness of Nordic man is an inheritance from the womb: he retains in adult life a stage which is transitory in the development of other races. Many human characters have been acquired by the operation of this law—the tendency for developmental stages to be delayed until childhood or adult life is reached.

BOLK'S LAW.

Although several biologists of last century were aware of the law just mentioned, its present importance owes so much to the investigations of Professor Bolk¹ of Amsterdam that we may justly speak of it as "Bolk's law." It provides us with guidance when we proceed to study the racial traits of the negro in that region of Africa where they are purest. The negro tends to retain the hairless body and beardless face of youth: in his skull and brain we find many examples of retention of the same kind. On the other hand, we see in the negro's body certain new characters which owe nothing to Bolk's law. Woolly hair is peculiar to the race, whereas other races have retained the older and more primitive hair-forms. Huxley believed, as did Bateson, that new races or species might come into being suddenly—by a jump. Certainly characters may, and I regard the woolly hair of the negro as a case in point. The thick everted lips of the negro are not ape-like, but new characters: possibly the depth of his pigmentation is also recent. The typical negro is not an old, but a relatively new, type.

How far does modern physiology help us to explain Huxley's third evolutionary centre—the Mongolian, which finds its focus in Mongolia and Northern China? Not very far: it supplies suggestions rather than proofs. Under aberrant action of the thyroid gland, we find men and women assuming a resemblance to the Mongoloid type. There is another condition which occurs in children, and is known as Mongolism: its exact cause we do not yet know, but it has all the signs of being due to an unbalanced state of the endocrine or hormone system. The victims of this disorder represent a distinctive physical type, which is recognizable at sight from traits which recall the Mongol. A third disorder of growth—known to medical men as Achondroplasia, but which may be called "bull-dozism," for dogs as well as human beings are subject to it—also reproduces some features of the Mongolian type. From all these observations we infer that the typical Mongol is the result of an evolutionary process in which some factors of the hormone mechanism have assumed a preponderating influence.

Another series of circumstances leads us to believe that pure Mongolianism is of comparatively recent origin. When we leave the area of its sharpest characterization and pass southwards into the Malay Archipelago, or if we cross to continental America, we observe that pure Mongolian traits as seen in the nose,

¹ See references given on p. 311.

eyelids, cheeks, and colouring gradually disappear and are replaced by features of less specialized kinds, such as are to be found in faces of the Indian and Polynesian types. If, on the other hand, we pass northwards from Mongolia into Northern Siberia and enter Eskimo territory, we find an exaggeration of all the Mongolian traits. If we pass westwards from our centre of greatest purity, we soon reach a zone where the nose, eyes, cheeks, chin, and skin assume the Aryan type. I see only one way of explaining these facts: we must presume that the pure Mongolian type is a recent modification of an old one which is still preserved among American Indian and Polynesian peoples. Further, we must presume that the pure Mongolian type has been evolved in Eastern Central Asia and that the characterization of this type is the result of the predominance of certain factors concerned in the physiology of growth. Amongst Caucasoid peoples an opposite endocrine balance tends to prevail, one which emphasizes the nose, the eye-brow ridges, the form of jaws, and growth of beard. For this reason, the frontier between these two types is usually sharply marked. They are mutually exclusive.

We must cast a passing glance on Huxley's fourth centre—the Australian. We are all agreed that the aboriginal people of Australia have retained more than any other now living the features of primitive man. Evolutionary change has left the native peoples of Australia but little affected, while it has wrought a transformation in the three other centres of the world—the Xanthochroid, the Mongoloid, and the Negroid.

THE DISTRIBUTION OF RACES.

I have been seeking to lay before you the explanation which modern anthropologists have to offer for the existence in our world of Huxley's four chief modifications of Mankind. We have now to ascertain why these types are massed in certain definite and continuous areas of the world.¹ If in prehistoric times man had

¹ It is unnecessary for me to give references to recent works on the racial distribution of mankind. That has been done already by my friend Dr. A. C. Haddon in *The Races of Man and their Distribution* (new edition, 1924). Dr. Haddon has recognized that many intermediate races may have arisen under the action of evolution. I may mention other recent works which I have consulted, but not always with a full measure of agreement:—A. H. Keane: *Man Past and Present* (new edition, 1920), revised by A. Hingston Quiggin and Dr. A. C. Haddon; J. Deniker: *Les Races et les Peuples de la Terre*, Paris, 1920; Professor Grinth Taylor: "Climatic Cycles and Evolution," *The Geographical Review* (1919), vol. viii, p. 289; *Environment and Race*, Oxford, 1927; Professor O. Schlegelhaufen: "Rasse, Rassenmischung und Konstitution," *Natur und Mensch* (1921), No. II, p. 398; "Bastardierung und Qualitätsänderung," *Ibid.* (1920), No. I, p. 1; Dr. Walter Schmidt: *Rassenkunde*, Munich, 1925; Professor S. J. Holmes: *Studies in Evolution and Eugenics*, New York, 1923; Professor Roland B. Dixon: *The Racial History of Man*, New York, 1923; Dr. Halfden Bryn: "Researches into Anthropological Heredity," *Hereditas* (1920), vol. I, p. 186; Dr. Maurus Horst: *Fortschritte der Rassenkunde*, Berlin, 1918; Professor Mendes-Correira: "Le Milieu Géographique et la Race," *Scientia* (1921), p. 371; Dr. George Montandon: "L'Ologénisme," *Revue Mondiale*, February 1st, 1927; *L'Éloge de l'Humain*, Paris, 1928; C. P. Frets: "Compuated Mendelian Segregation on the Heredity of the Head-form in Man," *Konink. Akad. v. Wetenschap. te Amsterdam* (1917), vol. xx, pp. 435, 865.

wandered and mingled everywhere on the face of the earth, we should find the population of the earth arranged, not as a great patchwork, as in Huxley's map, but as a more or less uniform mosaic. It may be moving towards this state, but it was not so in olden times. As Huxley's map shows, each main type had a definite area of distribution or homeland. There must have been in operation, therefore, some set of circumstances or conditions which induced human beings to cling to that part of the world of which they were native, and to remain in the proximity of people of like origin. No matter how potent may be the physiological machinery which is at work within a group of people, it cannot work out its full effects unless there is also in operation some system of segregation which causes the members of a group to cling to each other, and which also at the same time serves to isolate its members from all surrounding or competing groups. For the evolution of new human types or races we must postulate a double set of factors—one set physiological in nature, to mould the body; another set, to isolate and preserve the "cradle" in which the physiological forces are in operation. It is to those isolating factors I now wish to direct your attention.

THE MACHINERY OF SEGREGATION.

We may presume that the chief racial types of to-day were evolved under such conditions as those which may still be studied among the aborigines of Australia. The aborigines are arranged on a tribal basis. Each tribe is confined to a sharply demarcated hunting-territory: if it passes beyond this tribal frontier, then it encroaches on the hunting-rights of neighbouring tribes and will have to fight or retreat. Inter-tribal opposition or jealousy isolates a tribe, but still stronger forces bind it to its native territory. Its members are linked together by a community of speech, of customs, of beliefs, of kinship, and of interests. Every member of the tribe is bound to their native territory by a deep emotional attachment: if driven from it they long to return. If their territory is threatened there is roused that potent mental reaction, so deeply tinged with feeling, which is known as patriotism. Tribal organization provides the machinery of isolation or segregation which is necessary if physiological processes are to work towards a new racial type. Traces of a former tribal organization are to be found in all parts of the world, and it survived in the clans of Scotland until a recent date: for unmeasured ages it was universal. The brain of man was evolved under tribal conditions: its faculties, its feelings, emotions, and reactions are adapted to serve the needs of tribal organization. Incidentally, they serve the cause of evolutionary progress by producing the effects of isolation or segregation.

Physical barriers have also served to isolate races—mountain-chains such as the Himalayas, extensive tracts of desert such as the Sahara, and wide seas such as the Atlantic.

While I am discussing the factors which help to isolate a race and thereby maintain its purity, let me acknowledge the valuable help I have been given by my friend Mr. Walter Heape, F.R.S. He has devoted thirty years to the study of the territorial rights of animals and the important bearing these rights have on the processes of evolution. He finds that partition of territory holds not only for mankind, but also prevails among all the higher mammals. He has pointed out to me that under certain conditions the home-loving instincts may be suddenly transformed into wandering or migrating impulses. The one set of instincts nurses the type in its home; the other compels the race to extend its distribution. Historical records leave us in no doubt that man, too, has this double instinctive mechanism within him. Yet migration must have been always a subsidiary factor in human evolution: had it been otherwise, racial types would not be confined to their respective parts of the earth.

There is another important isolating factor which I must mention here—that inborn reaction or prejudice known as race-feeling. As Professor Giddings¹ has pointed out, all animals instinctively recognize their kind; they also recognize what is not their kind, and this recognition may be accompanied by a feeling of intense antipathy. Race-feeling lies latent in men and women as long as they move among their own kind, but when they move outside the frontiers of their tribe or country deep instinctive feelings of race-prejudice are awakened, and under certain circumstances may become inflamed and uncontrollable. I regard race-feeling as part of the evolutionary machinery which safeguards the purity of a race. Human prejudices have usually a biological significance.

FACTORS CONCERNED IN THE EVOLUTION OF RACES.

Let me remind you at this point, for the course of my argument may not be very apparent to you, of the three main questions I am seeking to answer. These are:—(1) How have the chief races of mankind arisen? (2) Why are these, in their greatest purity, confined to certain areas of the world? (3) Why do we find intermediate types in intervening areas?

My answers or explanations are of an evolutionary nature. I hold that the chief modifications of mankind have been produced and their locality determined under the action of a twofold machinery—(1) a physiological machinery, mainly endocrine in nature, which determines the growth and characterization of the body; (2) a psychological machinery which lies at the very root of human mentality. The machinery I am postulating is not remote in time and place: it is here and now recognizable and demonstrable in the body and brain of every one of us. To these two we must add (3) the selective machinery of environment. Changing environment is part of the selective machinery. In changing environment are to be reckoned

¹ Professor Franklin H. Giddings: *The Principles of Sociology* (1898).

gradual submergence of occupied lands, extension of desert zones, and the spread and retreat of Arctic conditions. The theory of racial evolution I am placing before you is that of Darwin merely re-stated in the light of modern knowledge.

THE EVOLUTION OF INTERMEDIATE RACES.

We have seen that Huxley was inclined to regard races which were intermediate in character to his main types as having arisen by inter-breeding: if, however, the machinery of evolution has been in operation since the dawn of humanity, and is still working in the human body and brain, we ought to find such intermediate races produced in the course of natural differentiation. There ought to be, and there are, races in every stage of the evolutionary scale—from a zero-point, where only a small percentage of individuals possess distinctive marking, to the full or complete stage, which is represented by Huxley's *pandiactic* races. In this final stage every individual has undergone racial characterization: this is what we actually do and in the world's population of to-day. Races are in all stages of differentiation: hence has arisen a clash of opinion among anthropologists as to the number of existing human races. Huxley at first counted 11, and subsequently reduced the number to 4. Haeckel began with 12 in 1873: six years later he enumerated 31. In 1889 Deniker divided mankind into 13 main races with 30 sub-races: finally he deemed it necessary to recognize 17 races and 29 sub-races.¹ The number of races depends on the standard of differentiation we adopt. I do not say that inter-breeding has not taken place and is not now occurring along racial frontiers: in certain cases and places it has taken place to a considerable extent. At the most, hybridity is a minor factor in the production of new races: its action cannot explain the racial state of the world: on the other hand, the theory of evolution does. It is now high time to recognize that any attempt made to classify the races of mankind must be founded on an evolutionary basis. Races must be grouped according to their scale of physical differentiation. There are the fully differentiated races—*pandiactic* races—in which every member is recognizable at sight by an expert: they are 100-per-cent. races. There are races where we can distinguish about 90 per cent. of its members, and so on down the scale, through *macrodiactic* stages, *mesodiactic*, *microdiactic*, until we reach the zero or *adiactic* stage. All are races in a strictly biological sense: all are stages of an evolutionary scale.

BRITISH RACIAL PROBLEMS RE-EXAMINED.

I now return to seek an answer to the question I asked at the beginning of this lecture: Was Huxley right when he refused to recognize a nation as a race because it was patently of mixed origin? Before an answer was possible, it was

¹ Professor Frank H. Hankins: *The Racial Basis of Civilization* (1926).

necessary to review what we know concerning the evolution of human races. On the facts elicited, we must admit that a human race may be at any stage of differentiation: a nation may be an incipient race, however mixed may be the derivation of its original population.

Before a final answer is possible, we must return to Huxley's racial map. The part of the world which gave him the greatest trouble was the region which lies between the British Isles in the West and India and Chinese Turkestan in the East. He found the peoples of this great area in a state of racial confusion, and unfortunately discarded the term Caucasian—the only name we have to indicate the generalized type which is represented by so many racial variants in the vast population of Europe and Western Asia.

CIVILIZATION THWARTS NATURE'S PLAN.

Why should this area of the world be so confused in a racial sense? Almost everywhere tribal boundaries have been swept away and national frontiers have taken their place. When we search for the force which has destroyed the tribal organization of ancient Europe, we have to dive into the prehistory of the Middle East. Somewhere in this part of the world was made the discovery on which our modern civilization is based—the art of agriculture. The tribe or tribes who made this discovery had gained an advantage over all their hunting neighbours: their numbers must have multiplied as their food-supply increased: sooner or later their tribal territory could not contain them and they had to spread. It is in keeping with all we know to regard the Caucasoid East as the cradle of civilization, and to suppose that from this centre wave after wave spread westwards across Europe, finally breaking on our islands. Tribal territories were broken down, and the ancient tribal organization employed by Nature in the evolution of human beings was brought into a state of disorder. And yet not utter confusion, for we still recognize some order in the racial pattern of Europe—a zone of long-headed swarthy peoples in the south, long-headed more or less fair people in the north, while the intervening areas are occupied by peoples with various types of round-heads and various degrees of colouring. Civilization has everywhere in the Caucasoid area queered Nature's plan of Evolution.

NATIONS ARE POTENTIAL RACES.

Huxley recognized that the population of the British Isles, like that of Europe, was, from a zoologist's point of view, in a state of racial confusion: it was patent to him that our four British nationalities were in the main varying degrees of mixture of the dark and fair racial stocks of Europe. He denounced all claims for national separation made on the score of race as mere shams. Since Huxley expressed himself thus, the Great War has swept over Europe, uncovering primitive traits and impulses which lie deeply buried in human nature. As a sequel to the war came the demands of small nationalities for separation and independence—"self-

determination" was the phrase employed to describe the process: the statesmen who had to consider and satisfy these demands believed they had to deal with political, not with biological, problems. Yet, if what I have laid before you concerning the evolution of races is right, these problems must be considered from a biological and evolutionary point of view. The small-nation movement is due to a recrudescence of the old machinery of racial evolution: in the atmosphere of war submerged human impulses came surging into activity.

Let us look at the national problems of Britain with the eye of an evolutionary biologist. The diverse racial strains which have settled in Britain from time to time have met each other on a common territory—a circumstance which tends to their final amalgamation. All brought with them the automatic machinery of racial evolution: every group of invaders or settlers had in their bodies a random sample of the physiological machinery concerned in the evolution of racial types; all had in their brains the attributes of mind which make for tribal organization—a necessary condition for racial evolution. By conscious effort on the part of statesmen, and by the force of circumstances, tribal frontiers have been broken down, and out of the welter have emerged four countries each the home of a nationality—a potential race. The old machinery of evolution has been confused—particularly by industry—but not eradicated. National spirit and patriotism are its modern manifestations. Racial mixtures thwart Nature's plan, but she immediately sets out to repair the mischief and to build up a new race by the fusion of the old elements. Nation-building is the first step to race-building.

BIOLOGICAL RACES.

From long experience, I have learned that it is dangerous to disagree with the great man whose memory we honour to-night. Huxley was nearly always right, and very few of his judgments have been reversed: yet I am convinced, and I hope you will be convinced on the evidence I have laid before you, that the zoological method he applied to the discrimination of human races was too crude for the purpose he had in view. He recognized only fully differentiated races: the races with which politicians have to deal are usually imperfectly differentiated races, but they are none the less biological races in the full sense of that term. Often the less differentiated a people is in the racial scale the more tribal is its outlook and the more jealously does it strive for isolation and separation. In an evolutionary sense every nation is an adiacritic or potential race: it is only when we look at nations in this way that we can explain their instinctive or involuntary actions and reactions. The nationalities of Britain I regard as partly differentiated races. I believe, but I have never put my belief to the test of actual proof, that in a mixed crowd composed of individuals drawn from our four nationalities I could identify, from physical appearances, 15 per cent. of the men of Wales, about the same percentage from

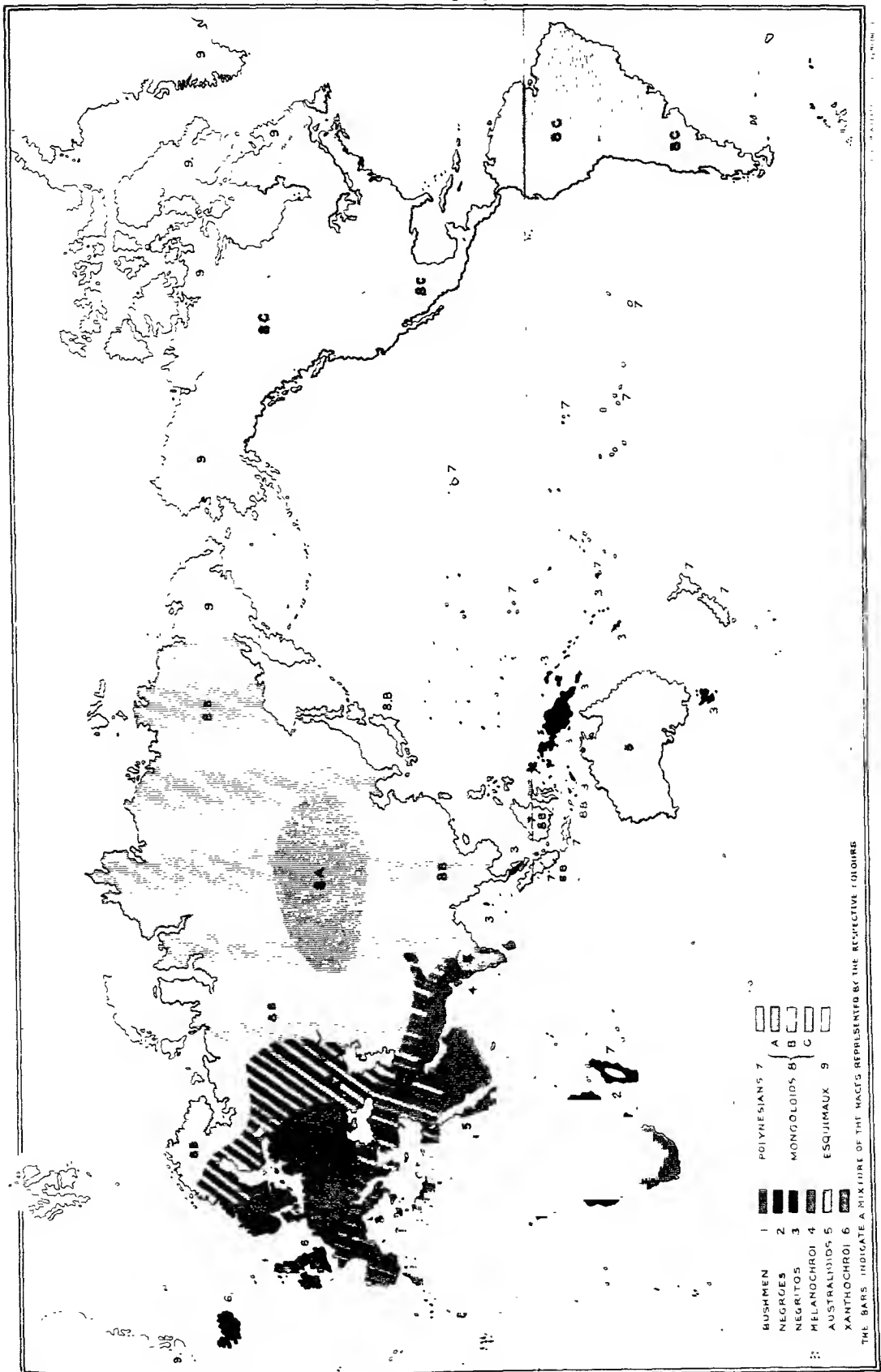
the Irish Free State, and about 10 per cent. of Scotch and English. Our nationalities are real races in a microdiacritic stage of evolution.

In the later stages of man's evolution we see that a constant strife has been going on between man's reason and his inherited instincts. In the problem we have been discussing man's unconscious urge to race-building has been going on and is still taking place: the tribal instincts are in all of us and tend to cloud reason. To understand the nature of the strife is the first step towards its abatement. It seems to me that man's body and brain are fashioned to serve in the execution of a great scheme of progress by evolutionary means: that scheme is being foiled by civilization—man's greatest discovery.

SUMMARY.

Huxley's examination of the racial problems of the British Isles is reviewed. His statement that neither Celt, Saxon, nor any British nationality can be regarded as a race in a zoological sense is made the subject of this lecture. To obtain light on British racial problems our knowledge concerning the number and distribution of the chief races of mankind is traced, Huxley's writings of 1865 and 1870 being accepted as still the best guides for this purpose. Huxley's verdict is accepted, viz., that the chief racial types may be reduced to four—the Nordic type of Europe, the Negroid of Africa, the Mongolian of Eastern Asia, and the aboriginal type of Australia. Besides the four main racial types there exist a large number of subsidiary and intermediate types, many of which Huxley regarded as hybrids produced by intermingling of the four chief racial types. Hybridity, however, cannot account for the chief types: to explain the origin of these, Darwin's theory of Evolution after being restated in the light of modern physiology is applied. The theory as thus restated includes the co-operation of a triple mechanism: (1) physiological processes which regulate the growth of the human body and determine its racial characterization: (2) an isolating or segregating mechanism, which tends to preserve a local people in its purity, and thus permits physiological processes to work undisturbed through many generations: this isolating mechanism is found to be mainly psychological, but physical barriers also isolate: (3) a selective mechanism represented by changing environment and also by inter-racial competition. If these evolutionary means are sufficient to produce the four chief racial types, they could also have given rise to all secondary and intermediate races. The conclusion is reached that hybridity has played only a subsidiary rôle in the evolution of races.

If evolution is true, we ought to find human races in every stage of differentiation. This is what anthropological investigation is now revealing. There are not only Huxley's main or completely differentiated racial types, but there are nationalities and peoples which represent every stage in the process of differentiation



HUXLEY'S MAP, SHOWING THE DISTRIBUTION OF WHAT HE REGARDED AS THE CHIEF MODIFICATIONS OF MANKIND.

Although published in 1870, it was evidently prepared in 1865, as it illustrates his conception of that date. In the text of the lecture of 1870 he reduced his eleven "chief modifications" to four by uniting Bushmen (1), Negroes (2), Negritos (3) to form the NEGROID TYPE; Melanochroi (4) was discarded as being of hybrid origin; AUSTRALOIDS (5) were retained; XANTHOCHROI (6) were also retained; the remaining groups (7, 8 A B C, 9) were united to form a MONGOLOID TYPE.

from a zero-point upwards. To races in which every individual is differentiated and can be recognized at sight by physical appearances the lecturer applies the term pandiacritic. If 80 per cent. and upwards of the individuals are recognizable, he gives the name macrodiacritic; if above 30 per cent. but under 80, he gives the name mesodiacritic; if under 30 per cent., he would name them microdiacritic races.

The evidence adduced is then applied to the racial problems of Britain. The lecturer agrees with Huxley in regarding the nationalities of Britain as compounds, in varying proportions, of two racial stocks. These stocks thrown together in a common territory had in their bodies and brains the old and irrepressible evolutionary machinery. Under its domination our four nationalities, starting from zero-point, have begun to climb the ladder of racial differentiation. British nationalities are regarded as having reached the microdiacritic stage of racial differentiation. The politician's conception of race is thus justified and should be regarded as having a true biological significance.

[Plate XXV is reproduced from *The Journal of The Ethnological Society of London*, New Series, vol. II, 1870, p. 368.]

REPORT ON THE BRITISH MUSEUM EXPEDITION TO BRITISH
HONDURAS, 1928.

[WITH PLATES XXVI-XXXVII.]

By T. A. JOYCE, T. GANN, E. L. GRUNING, AND R. C. E. LONG.

(*Preliminary Note by T. A. JOYCE.*)

IN 1926, while engaged in excavation at Lubaantun, I gathered reports from natives regarding stone remains said to be situated on or near the Pusilhà branch of the Mojo River to the south-west of Lubaantun. In 1927 I asked Mr. Eric Thompson, then one of my party, to visit the neighbourhood and make a preliminary investigation. He found no ruins, beyond the masonry abutments of a prehistoric bridge over the Pusilhà River.¹ About the middle of the year, Mr. Mason of Punta Gorda, while cutting a tractor road through the bush for trucking out mahogany logs, came upon stone remains situated not far from the bridge, between the Joventud and Pusilhà Rivers (though nearer to the former than the latter), a little over a mile from their junction to form the Mojo River. In the autumn, Mr. Thompson, who had returned to the Colony, revisited the neighbourhood, and made notes of the dates on three of the stele which had been discovered. Dr. Gann followed in November, and in his report to the British Museum, which indicated the existence of a series of stele inscribed with initial dates, suggested that an immediate examination of the site was most desirable. Accordingly the Trustees decided to suspend operations at Lubaantun, a site which will require many years to develop, and organize a preliminary survey of the so-called Pusilhà site, in order to obtain a record of the inscribed monuments (which are lacking at Lubaantun). For financial reasons it was impossible to carry on investigations at both sites.

Captain E. L. Gruning and Mr. H. Clive-Smith joined Dr. Gann in British Honduras towards the end of February. Owing to official duties, I was unable to accompany the expedition. My share in this report is merely that of an editor, though I have permitted myself a little latitude in the matter of comment, based on the photographs and material objects collected by the expedition.

After the expedition had left, a short visit was paid to the site by Professor S. G. Morley of the Carnegie Institution of Washington. He examined the inscriptions

¹ See his report, *Annals of the Royal Anthrop. Inst.*, vol. LVII, p. 315.

on the stelæ which had not been removed, and took photographs, copies of which he was good enough to place at our disposal.¹

Regarded as a preliminary survey, the expedition produced results of very considerable value. Three of the dated stelæ and three fragments have been removed to the British Museum, casts of the rest (as many as provided legible glyphs) were obtained, and a series of extremely interesting pottery fragments (many of which can be pieced together) was collected. As regards pottery, the site affords exceptional promise. A few days before the expedition was due to leave, a cave was discovered which gave indication of having been used as a pottery-dump. Careful excavation of this next season may shed some light on the succession of styles of Maya ceramic ware.

In the preparation of this report, the collaboration of Mr. R. C. E. Long has been most valuable in connection with the preliminary interpretation of the inscriptions as recorded in the photographs taken by Gann and Gruning. A closer study of the casts will certainly lead to further results.

It is not yet quite certain what name will eventually be given to this site. Before its investigation it was generally known as Pusilhà, but it is not very close to the tiny native settlement of that name, and it is certainly nearer the Joventud than the Pusilhà River. Moreover, there is reason to suspect that a larger group of ruins, known to the natives as Pusilhà, exists just across the Guatemalan border. For these reasons Dr. Gann suggests that it should be christened Chumuc-hà. There are, however, serious objections to changing an original name, and, unless there should prove to be another site, known definitely to the natives as Pusilhà, it would perhaps be advisable to retain the original appellation.

THE RUINS.

(By Dr. T. GANN.)

ON Friday, March 2nd, Gruning, Clive-Smith, and I left Belize in the motor-boat "Patricia," kindly lent by H.E. Sir John Burdon, Governor of the Colony, arriving at Punta Gorda the following day. There, through the good offices of Father Tenk S.J., we were able to hire two large dug-outs and a small motor-boat to tow them up the Mojo River, as well as two horses and a mule to carry us on from Flour Camp to the ruins. The motor-boat had to leave us at the first falls, and we proceeded by dug-out to Flour Camp, which we reached the next afternoon. We succeeded, with some difficulty, in collecting seven recruits from the villages of Machaca Indians, scattered along the banks, to act as carriers for our baggage from Flour Camp; and next day we arrived at Joventud Camp, the nearest point to the ruins. (*See* Text-fig. 1.)

¹ Pl. XXVIII, fig. 2, is reproduced from a photograph kindly supplied by him.

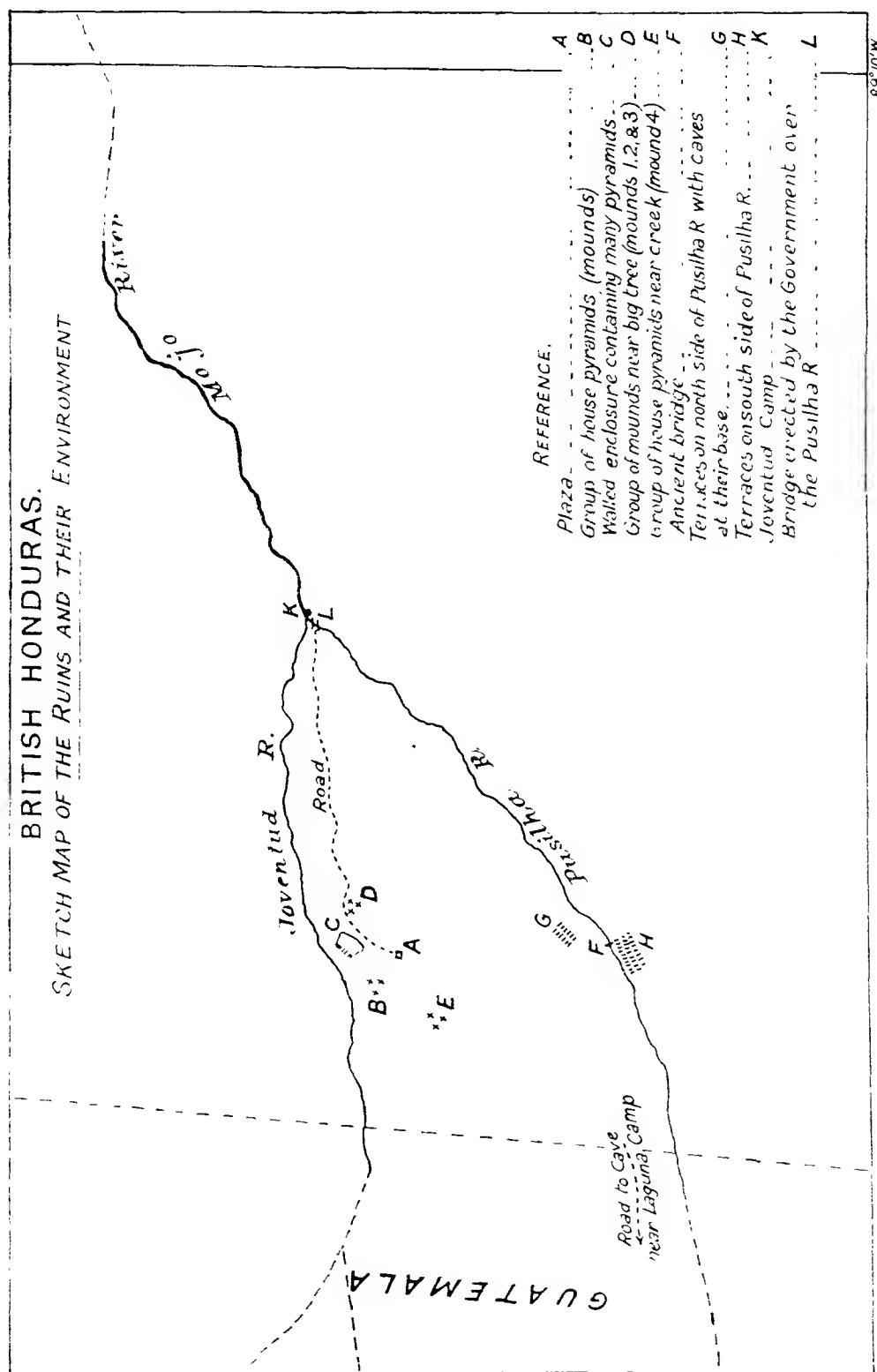


FIG. 1.

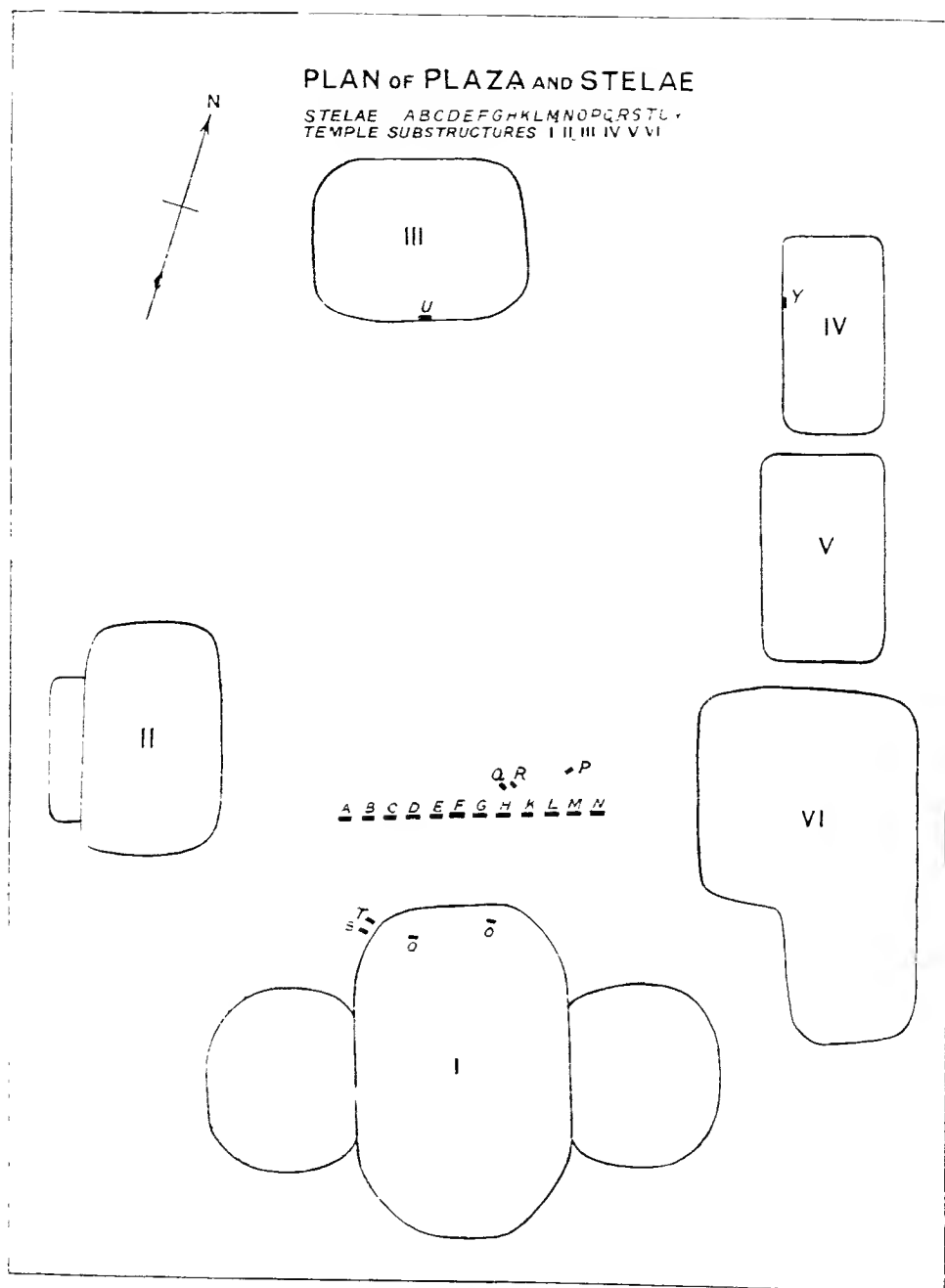


FIG. 2

The whole day was occupied in moving the impedimenta to Joventud, and next morning we reached the ruins, where we proceeded to erect a permanent camp.

The ruins are arranged as follows :—

The Plaza. (Pl. XXXI, fig. 2, and Text-fig. 2.)

The plaza is a rectangular enclosure, whose long diameter runs about 30° E. of N. It occupies the summit of a small natural hill which slopes gently down in every direction. It seems probable that the summit of this hill had been flattened artificially, in order to provide a suitable surface for the construction of the plaza. Its exact measurements are not easy to estimate, owing to the fact that a great quantity of earth and stones has fallen from the substructures which surround it, obliterating to a great extent their original outlines. When first discovered it was covered by a fairly dense growth of small palm trees, chiefly *colum* and *coroza*, amongst which stood a number of large forest trees. These had to be felled in order to admit of work being carried out on the stelæ and substructures. When cleared, the floor was found to be almost perfectly level and to be composed of three layers :—

- (1) A layer of dark vegetal humus, varying a good deal in depth in different parts of the plaza, but averaging, perhaps, 6 inches. This had evidently been formed by decaying vegetation, accumulated since the desertion of the city by its former inhabitants.
- (2) A layer varying from 6 inches to 12 inches thick, composed of small fragments of limestone lying immediately in contact with the last, which had evidently formed the original floor of the plaza. Between and around the stelæ this layer had been greatly deepened, and reinforced with large blocks of limestone, evidently with the object of affording a solid foundation for the monuments.
- (3) A tough, sticky, greyish clay, streaked with red and yellow, which formed the natural floor. The hill upon which the plaza was situated lay between the Joventud and the Pusilhà Rivers, 300 to 400 yards from the former, half a mile from the nearest point of the latter, and a little over a mile from their junction to form the Mojo River. The site was admirably chosen, as excellent natural drainage was insured, and a good water-supply was close at hand from rivers which were also teeming with fish: moreover, when the bush was all cleared, a splendid view must have been obtained of the terraces, the bridge connecting them, and, in fact, of the whole surrounding country. The plaza is enclosed on all four sides by six extensive, flat-topped pyramids, which had almost certainly served as substructures for the support of wooden temples, long since incorporated with the carpet of vegetal mould which covers

the entire site. Of these six structures, one is placed on the south-east, one on the south-west, one on the north-west, and three on the north-east side. All are now mere heaps of stone and earth, in the form of low truncated pyramids, but here and there are visible traces of terracing along their sides, and of stairways leading to their summits, which seem to indicate that all of them were originally terraced throughout, the terraces being built of roughly cut slabs of stone merely fitted together without the intervention of any mortar. The measurements given of the substructures are as they now stand, not as they were originally, as the latter measurements can only be ascertained after careful excavation.

The plaza is entered by four passages between the pyramids, one at each of its corners.

Substructure I occupies the whole of the south-east side of the plaza, and, as in front of it stood a row of 12 stelæ, it was probably the most important structure in the entire group. It measures 135 feet in breadth, 93 feet from front to back, and 13 feet in height. It really consists of three structures joined together—a large central pyramid 13 feet high, with a smaller pyramid on each side measuring 8 feet and $8\frac{1}{2}$ feet, respectively. On the side facing the plaza the remains of a stairway may still be made out. Very little excavation was done on this mound: it appeared to have been constructed of large irregular blocks of limestone and conglomerate mixed with earth, together with a few roughly squared flat stones.

One interesting discovery was made, however, namely, a small fragment of a broken stela very much weathered, which had evidently been re-used as filling, when constructing the substructure. No trace of any interior chamber, or Maya arch, was found.

Substructure II is 65 feet long, 37 feet broad, and 7 feet high. Towards its southern end, and facing the plaza, traces of three low perpendicular walls, very crudely built of flat flags, are still discernible. They divide this part of the structure into two narrow terraces, which at one time appear to have been continued round the whole circumference. Against the side of the substructure facing away from the plaza, the remains of a stairway, in the form of an inclined plane of stones and earth, are still visible.

Substructure III measures 58 feet in length, 44 feet in breadth, and $6\frac{1}{2}$ feet in height. In the centre of the side facing the plaza stood Stela U. An excavation was made into this mound from the centre to the plaza edge, reaching the ground-level. Nothing, except blocks of limestone and earth, was found.

Substructure IV, with Substructures V and VI, forms the north-eastern boundary of the plaza. It is 54 feet in length, 29 feet in breadth, and 4 feet in height. 18 feet from the end of the side facing the plaza stood Stela Y. Excavations, made with

a view to finding the lost pieces of this stela, revealed the fact that the side of the substructure facing the plaza was bounded by a perpendicular wall, 3 feet in height, now completely buried beneath humus and stones.

Substructure V is 54 feet long, 36 feet broad, and 4 feet high.

Substructure VI is 96 feet long, 58 feet broad, and 10 feet high. It actually consists of two structures joined together, the southern being narrower than the northern. Remains of walls, dividing the side facing the plaza into small terraces, are still found in places.

The Stelæ.

Fragments of 20 stelæ were discovered at the ruins, not including the small piece already referred to, used as filling in Substructure I.

All the stelæ were found either within the plaza itself or upon the substructures which surrounded it. Not one was intact and not one was in its original position: all had probably been knocked down and broken by falling trees, which is not surprising when one considers the shallowness of the foundations supporting the monuments, as compared with those of other Maya cities. In some cases fragments of a single stela were found many yards apart, a separation which can only have been effected by their movement by growing tree-roots and lianas.

The 20 stelæ are arranged in the following order: In a line directly in front of Substructure I, where they probably faced the principal temple, are the stelæ lettered A, B, C, D, E, F, G, H, K, L, M, N on the plan. The two halves of Stela O were found about midway up the north slope of Substructure I. Fragments of Stelæ P, Q, and R were found in the plaza, close behind the main line of stelæ. Stela U stood upon the summit of Substructure III, and Stela Y on the summit of Substructure IV. The earliest contemporaneous date found was that on Stela O, "9.7.0.0.0., 7 Abau, 3 Kankin"; the latest, "9.15.0.0.0." Abau, 13 Yax," on Stela E.

This means that on the evidence of the surviving dates alone, the city was occupied for a period of at least 7 Katuns, or 140 years, and probably for a great deal longer, as it is hardly likely that the erection of stelæ to commemorate Katun endings would have commenced immediately after the city was occupied, or that the entire population should have deserted the site immediately after the erection of the last stela.

Three varieties of stone were employed by the sculptors in the construction of the stelæ:—

- (1) Sandstone, probably quarried from the banks of a small stream close to the plaza, which runs through a vein of this stone.
- (2) Limestone, probably quarried from the neighbourhood of the terraces.
- (3) Conglomerate, obtained from great boulders of this stone found close to the plaza, on the banks of the Jovenud River.

The dates found recorded on the stelæ are as follows:—

Stela D.	9.3.0.0.0.	Stela K.	9.12.0.0.0.
	9.10.15.0.0.	.. M.	9.14.0.0.0.
.. E.	9.15.0.0.0.	.. O.	9.7.0.0.0.
.. F.	9.9.13.0.0.	.. Q.	9.8.0.0.0.
.. H.	9.11.0.0.0.	.. Y.	9.8.0.0.0.
	9.7.12.6.7.		9.10.15.0.0.

Stela A—The westernmost of the front row of stelæ. The upper part had been broken off at the ground-level and the buried base completely covered with humus, so that it was only discovered on excavation. The upper part appears to be represented only by a few small fragments. The base is made of rather soft, friable conglomerate and measures 34 inches in length, 38 inches in breadth, and 7 inches in thickness.

Stela B—This stela had also been broken off at the ground-level, and the base was only found on excavation. A row of six hieroglyphics was sculptured upon it, evidently the bottom row of the original inscription. None of them could be deciphered owing to weathering. The base is made of greyish sandstone, and measures 40 inches in length, 36 inches in breadth, and 8 inches in thickness. Numerous small fragments, apparently belonging to the top part of this stela, were found in the neighbourhood.

Stela C (Pl. XXVI).—This stela had been broken off near the ground-level, probably, to judge by the weathering undergone by the upper fragments, at a very early date. The stela is made of conglomerate. The portion buried in the ground measures 45 inches long, 42½ inches broad, and 13 inches thick. The upper fragment lay a few feet to the north of the base. It measures 66 inches in length, but at least 12 inches are missing from its top, consequently the stela when entire must have been from 10 to 11 feet in height.

The upper fragment had fallen with the Initial Series side upwards, and as the stone is of rather coarse conglomerate this has been entirely obliterated. On the side resting upon the earth was found, on turning it over, the greater part of a life-sized human figure, sculptured in rather low relief, and still in an excellent state of preservation.

The figure, probably meant to represent a priest, wears an immense and elaborate head-dress, decorated with the head of the feathered serpent. Ear-plugs and a nose ornament are worn. Round the shoulders is seen a small jewelled cape or cloak. The arms are folded across the chest, against which they held an elaborate ceremonial bar, to each end of which is affixed a grotesque face. A broad belt is worn round the waist, on the front of which is seen a grotesque human face, with open mouth and staring eyes, and on each side the same face in profile, showing the immense nose, and tang curving backward from the angle of the mouth. It would

appear that on all the stele were sculptured human figures on the sides facing the plaza.

Stela D (Pl. XXVII. fig. 1).—This stela is made of hard limestone. It had been broken into three fragments, the lower of which still stood in a slanting position, in its original foundation. The upper and larger fragment measured 48 inches in length, 42 inches in breadth, and 6 inches in thickness. A triangular piece had been broken from its top right-hand corner. On the side facing the plaza is sculptured a life-sized human figure, but this surface, facing uppermost in both fragments, is so badly weathered that only the deeper parts of the sculpture are unobliterated. Upon the surface facing the temple were sculptured 112 glyph-blocks, one of the longest inscriptions in the Maya area.

The hieroglyphics are archaic in style, and so irregular in size as to make the spacing of both columns and lines extremely unsymmetrical.

For purposes of description, the columns of glyphs are assumed to be lettered A to H, and the rows 1 to 14. In A1, B1, A2, and B2 is recorded the Initial Series Introducing Glyph. In A3 is recorded Bactun 9; in B3, Katun 3; in A4, 0 Tuns; in B4, 0 Uinals; and in A5, 0 Kins. Dr. Morley is of opinion that the sculptor has made a mistake, and that the Katun coefficient should be 8. He makes this suggestion on the grounds that he finds a glyph which he interprets as 3 Chen further on in the inscription,¹ and reads the whole date as "9.8.0.0.0., 5 Ahau, 3 Chen."

A second Initial Series date is recorded on this stela, the Introducing Glyph of which is seen in H3. It reads 9.10.15.0.0., and in H6 and G10 are recorded 6 Ahau, 13 Mac. On the plaza side of this stela stood a small circular stone altar, broken into several fragments, which appears to have stood originally about 2 feet from the stela. It was flat, crudely sculptured, and only a few inches thick.

[With regard to Morley's suggestion that the sculptor has made a mistake, and that the first Initial Series should read "9.8.0.0.0., 5 Ahau, 3 Chen," neither Long nor I are in agreement. In the first place we cannot identify the glyph which he interprets as "3 Chen." In the second place, the Initial inscription seems to be followed immediately by a glyph (B5) recording 2 Ahau. This glyph supports the date as sculptured, which, on this interpretation reads quite straightforwardly, "9.3.0.0.0., 2 Ahau" (18 Muan omitted). The study of this inscription is still incomplete, but Long's commentary, based on a preliminary inspection, runs as follows:—

"In my opinion there can be no doubt that the reading of the Initial date as '9.3.0.0.0., 2 Ahau (18 Muan)' is correct. It is very unsafe to assume errors in the inscriptions, unless the calculations are inconsistent with each other, but here we have the very day which the calculation requires. There is no month-day, but such an omission occurs in other Initial Series. The only support for the Morley reading is the glyph in A8, which is '8 Katuns,' while the preceding and following

¹ In this connection, see editorial note and Mr. Long's remarks appended in square brackets.

glyphs in A7 and B8 are ending-signs. In my opinion, the explanation is that the count passes through Katun 8 on its way from the first Initial Series to the contemporaneous date of the inscription. The same occurs in Altar Q, Copan, and on the lower hieroglyphic step of Mound 2, Copan. The only difference is that in the present case there is an ending-sign besides the Katun number. But this cannot affect it because in these other inscriptions the count equally passes through a Katun ending.

"I have two other readings to suggest. One is, that E9 and F9 is '2 Lamat, 1 Zip,' and the other is that E10, F10, E11, F11, and F12 is '2.18.10.12.'

One of the occurrences of the Calendar Round date, 2 Lamat,

1 Zip, in Cycle 9 is	9.10.14. 7. 8.
Adding above Secondary Series	2.18.10.12.

We reach	9.13.13. 0. 0.
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This would reach '8 Ahau, 8 Kayab,' which is not found in the inscription.

"Instances occur elsewhere of the date reached by a Secondary Series not being expressed, especially when it was an important date, such as a Hotun. In the present case the omitted date is a 13-Tun ending, also an important date. It is well known how important all 13-Katun and 13-Tun endings were, and here the author of the inscription had an extra-special ending to mark, since it was Tun 13 of Katun 13. Again the suggested Initial Series value, 9.10.14.7.8, for 2 Lamat, 1 Zip, is only 212 days from 9.10.15.0.0., so both the beginning and ending dates of the Secondary Series are probable. The second Initial Series in the inscription, commencing in H3, is 9.10.15.0.0., 6 Ahau (13 Mac). The inscription shows clearly 6 Ahau as required by calculation, and the 8 Ahau in Gann's paper is probably a clerical error. I suggest here a new reading, namely, that H13 is the Hotun glyph which would be correct following the 9.10.15.0.0.

"Considering this inscription as a whole, it is evident that the first Initial Series, whether on the Joyce or Morley readings, is only a traditional date recorded in the inscription, not the contemporaneous one. The contemporaneous date is no doubt the Hotun ending 9.10.15.0.0. The date 9.13.13.0.0. is a prophetic date referred to on account of its remarkable numerical properties. The dates may be summarized as follows :—

A1, B1, A2, B2, A3, A4, A5	..	9.3.0.0.0.	
B5	.. .. .	(9.3.0.0.0.)	2 Ahau (18 Muun).
B7, A8, B8	.. .. .	(9.8.0.0.0.)	Ending 8 Katuns.
E9, F9	.. .. .	(9.10.14.7.8.)	2 Lamat, 1 Zip.
E10, F10, E11, F11, F12	..	2.18.10.12.	
		(9.13.13.0.0.)	(8 Ahau, 8 Kayab.)
H3, etc.	.. .. .	9.10.15.0.0.	6 Ahau (13 Mac).
H13	..	(9.10.15.0.0.)	Hotun."]

Stela E (Pl. XXVII, fig. 2).—This stela is made of hard limestone, in which were a number of large holes which had probably been filled with hard cement, over which the sculpture had been carried. On the side facing the plaza a life-sized human figure had been sculptured, now very difficult to recognize, as this side of the stone, being uppermost, was badly weathered. The stela had been broken into 5 pieces, a great part of the uppermost of which is missing. The second and third fragments fit together fairly well. The fourth piece contains a single row of glyphs only, as does the bottom piece, which is still *in situ*. The original height of the stela was approximately 14 feet to 15 feet. The fragments which include the first glyphs on this stela were discovered too late to mould, and do not appear in the illustration.

In A1, B1, is revealed the Introducing Glyph.

In A2 are seen, at the upper part of the glyph-block, parts of 4 dots. The bar has been broken away, but it is practically certain that Bactun 9 is indicated.

In B2 one bar remains at the upper part of the glyph-block, indicating Katun 5, 10, or 15.

In A10 is seen an Ahau sign, from which the numerical coefficient has been broken away, and, next this, the month Yax, with the numerical coefficient, apparently, 13.

In B11 is recorded Katun 15.

The Initial Series date would appear to be "9.15.0.0.0., 4 Ah au, 13 Yax."

[Long and I agree with this reading, after independent study of the inscription.]

Close to the base of this stela, buried in its foundations on the side facing the plaza, was found a cache containing nearly 100 eccentrically shaped objects of flint and obsidian, varying in length from 1 inch to 7 inches. They included rings, crosses, crescents, plain and indented spear-heads, scorpion-shaped objects, and others of even more grotesque form. (Pl. XXXV, fig. 1.) They are almost precisely similar to those found by Teobert Maler at Naranjo, in Guatemala, and by myself at the ruins of Xunantunich. On the plaza side of the stela, about 2 feet from its base, was found a small altar, rather crudely sculptured from limestone. It represents a frog with a human head, and measures 33 inches long, 22 inches broad, and 11 inches high. It appeared to stand in its original position. (Pl. XXXV, fig. 3.)

Stela F.—This is the largest monument at the site. It was made of hard, compact limestone, and measured 16 feet in length, 4 feet 2 inches in breadth, and 1 foot 8 inches in thickness. It had fallen with its only sculptured side up, so that, hard as the stone was, little but the outline of the glyph-blocks could be made out with any degree of certainty. Unlike the other stelae, the inscription occupied the side of the stone facing the plaza. The glyphs themselves were so badly defaced that it was impossible to decipher them with any degree of certainty, but Dr. Morley reads it "3 Ahau ending a Tun 13." The only place that this can occur in Bactun 9 is 9.9.13.0.0., 3 Ahau.

Around the hole containing the base of this stela was found what constitutes probably the largest cache of eccentrically shaped flints and obsidian knives and

cores ever found in the Maya area: they numbered in all 600, and include a flint 7 inches long, representing, crudely, a human figure, and a beautiful, flat jade ring $3\frac{1}{2}$ inches in diameter. These objects were scattered broadcast for several feet around the base of the stela, and several were found beneath it (Pl. XXXV, fig. 2.)

Stela G.—Only the base of this stone was found, buried beneath the vegetal humus. It was made of hard limestone, and measured 43 inches in length, 30 inches in breadth, and 7 inches in thickness. Fragments of what, to judge by the nature of the stone, had once formed part of this stela were found on the plaza close to it.

Stela H (Pl. XXVIII, fig. 1).—This stela was made of rough conglomerate, and measured 10 feet in length, 16 inches in thickness, and 35 inches in breadth, at its broadest point, which was near the centre. The base, which had been buried in the earth, and which must have afforded but a poor foundation for such a great mass of stone, was pointed, and the stela itself narrowed towards the summit, evidently conforming in shape to the mass from which it was cut. The stela had been broken in two, 6 feet 10 inches from the summit. On the side facing Substructure I are 5 rows each containing 16 glyph-blocks, and one row containing 15, making 95 glyph-blocks in all. On the back are still traces of a life-sized human figure, very much worn, as this side had been exposed to the weather. The inscription, having been turned to the earth, was fairly well preserved. Beginning at the left-hand upper corner the first four glyph-blocks, A1, B1, A2, and B2, contain the Introducing Glyph. In A3 is seen recorded Bactun 9; in B3, Katun 11. In A4 the glyph is much weathered, but the coefficient is obviously 0, and the same applies to B4 and A5. In B5 is recorded the day in the Calendar Round upon which the Initial Series date fell. This must of necessity be Ahau, and its coefficient is clearly 12. The whole may be read "9,11,0,0,0, 12 Ahau, 8 Ceh." The month sign, 8 Ceh, is probably recorded at A7, where, though the glyph itself is obliterated, the coefficient 8 is very clear. A second Initial Series date is recorded further on. The Introducing Glyph is completely obliterated, but at D7, is clearly recorded by 9 Bactuns; E7 appears to record 7 Katuns; D8 undoubtedly 12 Tuns; E8, 6 Uinals; and D9, 7 Kins, followed by 8 Manik, 10 Kayab. The whole Initial Series reads "9,7,12,6,7, 8 Manik, 10 Kayab."

[Long agrees with this reading.]

About 2 feet from the stela, on its plaza side, was found a small altar in the form of a frog with a human face: this was completely covered with vegetal humus, and only discovered on digging round the stela. The altar, though crude, was the best of those found at this site. It was made of conglomerate, and measured 37 inches in length, 19 inches in breadth, and 9 inches in thickness.

Stela K (Pl. XXVIII, fig. 2).—This stela was made of dark-brown sandstone. It measured 103 inches in length, 37 inches in breadth, and 7 inches in thickness. It had been broken in two—evidently at some remote period, as the fractured surface

was much weathered. A large triangular fragment, which could not be found, was missing from the left side. Fortunately, both fragments had fallen with the sides containing the hieroglyphic inscription downwards and these were found, on turning the stela over, to be in a fairly good state of preservation. Upon the opposite side had been sculptured a life-sized human figure, now so weathered that only the deeper lines of the sculpture are distinguishable. The inscription consists of 5 columns of 11 glyph-blocks each: of these, however, 8 are gone with the triangular fragment from the side of the stela. This surface of the stone seems to have undergone a curious sort of partial weathering, as some of the glyphs are in excellent preservation, while others are almost obliterated. The Initial Series date does not commence, in this inscription, from the upper left-hand corner, but from the centre—a most unusual, but not unique, arrangement.

In glyph-blocks C1, D1, C2 and D2 is recorded the Initial Series Introducing Glyph. In C3 is very clearly shown the Bactun glyph, with the coefficient 9. In D3, the Katun glyph and its coefficient are both very obscure, but the number indicated appears to be either 12 or 7. In C4, 9 Tuns are recorded: in D4, both the Uinal glyph and coefficient are very obscure, but in C5, 9 Kins are plainly recorded. In C11, D11, is recorded the Calendar Round date, 10 Ahau, 8 Yaxkin, upon which the Initial Series date fell. As only one Katun-ending in Bactun 9 fell upon this day, *i.e.* that of Katun 12, we may undecisitatingly read the Initial Series date as 9.12.0.0.0, 10 Ahau, 8 Yaxkin. At the base of this stela—on the side facing Sub-structure I, and not, as in the case of all the other stela, on the plaza side—was found a cache containing a large jadeite bead and nearly 100 obsidians, including knives, cores, and eccentrically shaped objects, very similar to those found at the base of Stela F.

[Long agrees with this reading.]

Stela L.—Only the base of this stela remained standing upright in its original foundation. It was made of soft sandstone, and measured 30 inches by 28 inches. No trace of the upper part of this stela was found. Stela K, to the east of L, recorded the end of Katun 12; Stela M, to its west, recorded the end of Katun 13, so it is only reasonable to suppose that this stela recorded the end of Katun 13, or an Oxlahuntun.

Stela M (Pl. XXIX, fig. 1).—This monument appears to have been at some remote period completely uprooted, and broken into fragments. We discovered and fitted together three of these, and so obtained the major part of the inscription. The reconstructed part measured 58 inches in length, 34 inches in breadth, and 6 inches in thickness. On one side were traces of the usual life-sized human figure, and, on the opposite side, the hieroglyphic inscription. All but a few of the glyphs were badly defaced, and some of them completely obliterated. There remain, however, I think, sufficient to show that the date recorded is the end of Katun 14, of Bactun 9. In A1 is seen the Introducing Glyph, occupying a single glyph-block, and not as is usual 4 glyph-blocks. In B1 is clearly shown the head

Stela S.—This consisted of one large and several small fragments of sandstone upon which traces of sculptures were still discernible, and which had evidently at one time formed parts of a stela. They were found buried beneath the humus, at the base of Substructure I, on the side facing the plaza.

Stela T.—A fragment of limestone found close to Stela S, which, to judge by its size and shape, had formed part of a stela. The sculpture upon it had been obliterated almost completely.

Stela U.—This stela was found upon the summit of Substructure III. It had been broken off at the base, and the upper fragment was broken in two. Upon one surface were 4 columns of hieroglyphics, with 26 perfect and 4 imperfect glyph-blocks. The stone was so badly weathered that it was found impossible to decipher the date recorded upon it. The top left-hand glyph resembles the Introducing Glyph of an Initial Series, but the Bactun, Katun, Tun, Uinal, and Kin signs, with their coefficients, are all hopelessly obliterated. Some of the other glyphs are in a fair state of preservation, though the essential ones are gone. The monument, which is of conglomerate, measures 35 inches in breadth, and the two remaining fragments measure, together, 65 inches in length.

Stela Y (Pl. XXX, fig. 2).—This stela was situated upon the summit of Substructure IV. Only the upper part of the stela, which was broken into four fragments, was recovered. This, when the pieces were fitted together, measured 34 inches in length and 46 inches in breadth. It contains 8 columns of 5 glyph-blocks each, but obviously the greater part of the bottom of the inscription was missing.

Glyph-blocks A1, B1, A2, and B2 are occupied by the Initial Series Introducing Glyph. In A3 is recorded very clearly Bactun 9, the ordinary sign for the Bactun being used. Glyph-block B3 contains the Katun sign. This is a good deal weathered, but almost certainly the numerical coefficient is 7. 0 Tuns in A4, 0 Uinals in B4, and 0 Kins in A5 are all very plain. The whole Initial Series appear to be 9.7.0.0.0., 7 Ahau, 3 Kankin.

E1 on this inscription records 10 Katuns; F1, 15 Tuns; E2, 0 Uinals; and F2, 0 Kins. Dr. Morley believes that this records the Initial Series date 9.10.15.0.0., the Introducing Glyph and the Bactun sign having been recorded upon the bottom of the two preceding columns, which are missing.

[Mr. Long remarks:—

“The readings of 9.7.0.0.0., 7 Ahau (3 Kankin), and (9).10.15.0.0., 6 Ahau (13 Mac) must be accepted.

“I have a new reading to add, namely that H3 is the head variant of the Tun glyph with, probably, the number 15, while G4 is 3 Katuns, the Uinals and Kins being omitted as sometimes occurs.

" Now, if from the second Initial Series	9.10.15.0.0.
we subtract the above Secondary Series	3.15.0.0.
<hr/>	
the remainder is the first Initial Series	9. 7. 0.0.0.

" This is a parallel case to Stela F at Quirigua, where the two Initial Series on the same monument are connected by Secondary Series."]

The Altars.

As stated elsewhere, three small altars were found, apparently *in situ*, on the plaza sides of Stelæ D, E, and H. Those in front of Stelæ E and H were crudely sculptured, to represent frogs with human faces; the third was simply a flat, circular, limestone disc. In addition to these three, however, two other fragments of frog-shaped altars were found, buried beneath the vegetal humus which covered the plaza, and, in the same situation, several fragments of what appeared to have been flat, round altars, similar to that found in front of Stela D. It is not improbable, therefore, that beside every stela, at least those in the front row, there stood originally a small altar. It was found impossible to assign any of these altars, except those fronting Stelæ D, E, and H, to the stelæ to which they belonged, as their fragments were scattered about, indiscriminately, at the back of the plaza.

The Mounds.

One of the most interesting mounds at the site was situated about a quarter of a mile from the plaza, along the road leading to Joventud Camp. It was close to the largest tree I have ever seen. Almost beneath the shadow of this tree were two great stone-faced pyramids with flat summits, the largest of which was about 12 feet high and almost perpendicular. At first I supposed that these two pyramids were the usual substructures for the support of dwellings or temples, so common at the site, but on closer examination I observed, on the flat summit of the larger one, three small subsidiary mounds, each approximately 2 feet high, 12 feet long, and 8 feet broad. This was unusual, and as the work would not take very long, we determined to excavate them.

Mound I.—This mound was found to be composed throughout of blocks of limestone, and earth, which went down to a depth of about 4 feet, where the smaller mound became continuous with the pyramid upon which it stood, which was built of great rough boulders of limestone. At a depth of 18 inches fragments of obsidian knives and nicely painted potsherds began to appear. Just below these we found two obsidian cores and two perfect knives, with the bones of some good-sized bird—probably a curassow—and those of a deer. Near these were some human remains, consisting of fragments of the long bones, and some teeth, accompanying which were a broken javelin head covered with white patina, part of a small stemmed spear-head, two fragments of broken jadeite beads, and two obsidian cores. Most interesting of

all, however, was a beautifully moulded pottery head, $1\frac{1}{2}$ inches in length, with regular features, rather flattened nose, and large prominent lips. What rendered this little mask extraordinarily interesting was the fact that it was almost precisely similar to some found at Lubaantun, the site on the Rio Grande, where the British Museum have been carrying on excavation for two years. This was the first of these clay figurines discovered, but, later, several appeared which might have been made from the same moulds as some of those at Lubaantun, so close is the resemblance. These two places must undoubtedly have been contemporaneous, and there must have been free intercourse between them, which, as they are only about 25 miles apart in a straight line, is not surprising. The proof of this contemporaneity is exceedingly important, for, whereas dates are plentiful at this site, not a single one has ever been found at Lubaantun.

Mound II was situated a few yards from the first. At a depth of 2 feet, on the north side of the mound, a human skeleton was found, lying on its back in the fully extended position. It was apparently that of a young female, less than 16 years of age, as the head and great trochanter of the femur were not as yet joined to the bone by osseous tissue. The cranial bones were very thin, and were recovered with some difficulty. Compression, during infancy, had evidently been practised in the frontal region, in order to produce the sudden slope backwards of the forehead, above the superciliary ridges, so dear to some branches of the Maya. With these bones, and scattered about indiscriminately on all sides of them, were found the following objects:—

- (1) Six obsidian knives.
- (2) The bones of a deer.
- (3) Fragments of a nicely painted pottery vessel.
- (4) A tubular shell bead, and two small circular objects of the same material, perforated through the centre, one plain, the other with an incised device; both, probably, small ear-plugs.
- (5) A small clay head, evidently of a female, as the hair is swept back on each side from a central parting, in two flat bandeaux, which pass behind the small circular ear-plugs worn in each ear.

This was probably the grave of a young girl of the working-class, buried with her few small possessions, and a little food supply for her journey to the next world. It may seem surprising to find obsidian knives buried with a female, but the little obsidian knife must have been to the Maya woman what the scissors are to her modern sister, and what his pocket-knife is to a man.

In the centre of this mound, at a depth of 2 feet, was found a mask $5\frac{1}{4}$ inches long by $3\frac{3}{4}$ inches broad, beautifully carved from hard, white limestone. (Pl. XXXII. figs. 1 and 2.) It was hollowed out behind, and represented an individual with a very flat, broad nose and large mouth with protruding lips. Over the forehead are

five circular depressions, $\frac{3}{4}$ inch in diameter, evidently meant for the reception of insets, probably of obsidian or shell: we searched very carefully for these, but could not find a single one. Immediately beneath the mask were found a few fragments of human long bones and teeth, with the head of a small clay figurine very much defaced. It seems curious that an extremely valuable article, such as this mask must have been, should be buried with an individual so poverty stricken that his only other earthly possession appears to have been a single clay figurine, very much the worse for wear, and so little regarded, that his friends did not even place with him the usual food offering, to support him on the long journey he was about to undertake.

Mound III was situated within a few yards of *Mound II*, and was almost exactly identical in size and construction. At a depth of 18 inches below the surface, were found a few fragments of human long bones, and teeth, so badly decayed that it was impossible to determine either the age or sex of the individual to whom they belonged: with these bones were the following objects:—

- (1) Eight fragments of obsidian knives.
- (2) A number of potsherds, painted red, yellow, and black.
- (3) A broken flint spear-head.
- (4) Parts of two small Lubaantun style clay figurines. One of these represented a man with receding forehead, straight, well-formed nose, prominent lipped mouth, and obliquely set eyes, apparently closed in sleep. A second figurine represented the bust of a rather stout woman, whose hands were folded together in her lap: the waist is uncomfortably constricted for that of such a stout person.

Mound IV.—Four other small mounds were excavated here, at points separated by considerable distances from each other. The first of these was one of a group of three flat-topped mounds situated midway between the plaza and the nearest point to it on the Joventud River. It was almost circular, 30 feet in diameter, and 4 feet high. The whole of the central part of the mound was dug away down to the ground-level; it was composed of the yellow clay of the surrounding soil, reinforced by great numbers of rough blocks of limestone. No human bones, and no artifacts of any description were found within it. The top of this mound was perfectly flat. The two other mounds in this group were almost exactly similar to the one described, and it was considered useless to excavate them. There can be little doubt but that all these flat-topped mounds, built of clay, with a strong reinforcement of stone, were merely substructures for the support of wooden houses.

Mound V.—This mound formed one of an extensive group, close to the plaza, and between it and a small creek running into the Pusillà River. It was irregularly circular, 27 feet in diameter, and 4 feet in height. It was built of earth, freely mixed with large blocks of stone, forming a firm and very lasting foundation for the support

of a wooden building, little affected, as its perfect state of preservation attests, by even the heavy rainfall of this district. The mound was quite flat on top, and though it was dug down to the ground-level, neither bones nor artifacts were found within it.

Mound VI.—This mound was situated close to Jovenutal Camp. It was twice the size of Mound V, but, on digging down to the ground-level, it proved to be composed of clay with a very large reinforcement of stones. Neither bones nor artifacts were found. The summit was flat and extensive, and it also had evidently been a substructure for the support of a wooden house.

Mound VII.—Was situated on the south side of the Pusilhà River, near the bridge, at the base of the southern terrace. Here the interstices between a group of great limestone boulders had been filled in with earth and potsherds in about equal proportions. The sherds, constantly exposed to water draining from the terraces above, were so rotten as to be almost incorporated with the clay and difficult to separate from it. The majority were of common domestic ware, but a few were of polychrome vases. Fragments of human bones were found in one of the crevices, so much decayed that it was impossible to tell the age or sex of the person to whom they belonged. It seems probable that these rocky crevices were used as rubbish depositories by the ancient inhabitants, and a more thorough examination may bring to light a number of interesting objects, but it can hardly be hoped that pottery fragments will ever be recovered in as good a state of preservation as were those in the cave, presently described, owing to their much less favourable position.

The Bridge. (Pl. XXXI, fig. 1.)

Probably the most remarkable structure throughout the entire site, and one, so far as I am aware, quite unique within the Maya area, is the bridge, or rather the remains of a bridge, across the Pusilhà River. This is situated some half a mile in a straight line from the plaza, and was obviously intended to connect the two main districts of the ancient city, situated on the northern and southern terraces. The bridge consists of two stone abutments placed opposite to each other, on the northern and southern banks of the river, with a spillway on each side to carry off flood water. There must originally have been, not one bridge, but three—one extending across the river from one abutment to the other, and one on each side of this bridging the spillways. The abutments are built of stone, and where they are in contact with the water are faced with very large blocks neatly fitted together. Each abutment measures 75 feet in length at the base and 55 feet at the summit. The breadth of each to the spillways is 32 feet, and the height, which is slightly greater in one than the other, approximately 15 feet.

The spillways, curved channels running on the outer sides of the abutments, above and below which they open into the river, are paved throughout with neatly fitted blocks of limestone. The openings of each were 7 feet above the river level

at the time of our visit, so that they could not come into operation till the river rose at least 7 feet above its then level. The river above the abutments was approximately 20 yards wide, between them 10 yards. Below them it expanded into a small and very deep lagoon, perhaps 80 yards across.

The depth of water between the abutments at the time of our visit varied from 6 feet to 10 feet. The function of the bridge was, as already stated, obviously to connect the northern and southern parts of the city, across the Pusilhà River. In the dry season this would hardly have been necessary for a people using neither wheeled vehicles nor beasts of burden, as good fords existed both above and below the bridge, but in the rainy season, especially during high floods, these fords would have become quite impassable, and even crossing in a dug-out would have been attended with a certain amount of risk.

Though at no other Maya city does such a structure exist, it is not because of the lack of need for one : as at Copan, the river runs through the ruins ; and at Tikal, the various districts of the city are separated from each other by barrancos : yet at none of these sites are any vestiges of ancient bridges found.

The construction of this bridge postulates a considerable amount of engineering skill on the part of the ancient Maya ; moreover, their work was built to last, for, though the abutments were put up perhaps 15 centuries ago, they are very much as their builders left them, and the spillways are unchanged, yet the whole structure has had to withstand the tremendous floods of perhaps 1,500 rainy seasons, when the river may rise 10 feet in 24 hours, and a gentle stream be converted into a raging torrent, down which come hurtling great tree-trunks, striking like battering-rams with almost irresistible force on the up-stream surfaces of the abutments.

The floors of the original bridges were probably made of logs of sapote wood, laid side by side in contact with each other. This wood, which is plentiful in the surrounding forest, is hard, tough, and where protected from the weather almost everlasting : indeed, some of the beams and lintels in Maya temples, made from it, still remain but little changed after 8 to 18 centuries. In the open, and exposed to the weather, however, the bridge timbers have disintegrated centuries ago. We felled a large Santa Maria tree growing on top of one of the abutments and let it fall across the stream, bridging it again for the first time since its builders disappeared.

The Caves.

Along the base of the terraces, in the side of the limestone cliffs which adjoin them, and even on the floor of the terraces themselves, were found numbers of caves, some of them of considerable extent, others mere crevices in the rock. These seem to have been used partly as refuse heaps for the deposition of rubbish as potsherds, flint and obsidian chips, broken implements and weapons, fragments of rubbing stones, etc., and partly as burial places, for human bones in a poor state of preservation were found by us in three of them.

Cave 1 was situated at the base of a terraced limestone ridge, on the north side of the bridge, and not very far from it. It commenced as a small roughly circular chamber some 12 feet in diameter, from which branched out two narrow passages, and it was in the exploration of one of these that the most important results were obtained. The floor of the little chamber was composed of earth and moderately large blocks of limestone, and the passage to the right was filled almost to the roof with the same material; as some of these stones were water-worn, it was obvious that they had been brought in by human agency. In the centre of the roof of the chamber was a large, round, funnel-shaped hole, which may have been used to facilitate the shooting of rubbish into the cave beneath. In excavating, we divided the material on the cave floor roughly into three levels: the first, from the surface to a depth of 2 feet; the second, from 2 feet to 4 feet; and the third, below 4 feet. Not one-third of the contents of the cave were removed, as it was felt that work of such importance should be left over till the next field season, when a larger force and more time would be available for its proper prosecution.

Removing the earth from the right-hand passage was at first an extremely tedious business, as, owing to the lowness of the roof, only one Indian could work at a time, and, till the hole grew larger, he had to lie on his belly and pass the stones up, one by one, to another Indian behind, working by the light of a gasoline lantern, as sufficient sunlight did not enter for the purpose. From the commencement, potsherds and obsidian chips came out in great abundance, and curiously enough one of the first objects to be found, lying, in fact, on the surface, was a flat triangular piece of iron almost rusted through, obviously the point of a machete, which had probably been broken off by some mahogany-cutter, many years before, when searching for treasure in the cave. In the first 2 feet of the cave floor we found a great number of objects the majority of which were potsherds; amongst these were the bones of large mammals and birds, and pieces of corn grindstones, made of hard porous volcanic rock. About a foot below the surface we came upon a small cache of perfect obsidian knives and cores, the presence of which in a rubbish heap is difficult to account for; near them were two little crescentic objects of sandstone, probably used for sharpening stone and bone implements. Close to these were found fragments of human bone, very much decayed, representing at least two individuals, and it is possible that the obsidians and other implements were buried with these as funerary offerings in the usual way. At the bottom of the 2-foot level were found fragments of a very fine incense burner, consisting of the head, with part of the head-dress, the hand, and some of the elaborate ornaments of the figure, in appliqué, which decorated the outside of the censer (Pl. XXXIII fig. 1). On another censer the head is painted claret colour, the eyes white; the nose is large, straight, and prominent, and the forehead high, showing no trace of cranial deformation; the lips are so large and prominent as almost to amount to a deformation, closely resembling the lips of the limestone mask already

described (Pl. XXXIII. fig. 2). Great numbers of potsherds were found in this top layer, for the most part of crude domestic pottery, and red polished ware. Amongst them, however, were a proportion of polychrome ware, the colours used being red, yellow, white, and black, and the devices, for the most part, geometrical in style.

The second level, from 2 feet to 4 feet, was, like the first, composed of earth and stones. Great numbers of potsherds were found in it, chiefly of common domestic utensils, but amongst these a very considerable proportion of finely painted and decorated ware. No complete vessel was found, and usually not more than one or two fragments of each, but, as only about one-third of the contents of the cave have been removed, it is to be hoped that next year sufficient fragments may be recovered to reconstruct, at any rate, a few of the pots. (Pl. XXXIV.)

Two fragments are particularly noteworthy, upon each of which is painted a human face, in red, yellow, black, and white. In the first, the nose is straight and large, and the chin prominent. The face is painted red, black, and yellow, in a complicated pattern, probably intended to represent the colour and design used by the ancient Maya in painting their faces on ceremonial occasions. Part of the outer layer of paint has scaled off, and shows the technique of applying an outer coat over a subjacent slip. In the second head the nose is hooked, and the forehead so receding as to suggest deformation. The lips, like those of the mask and incensario, are large, the lower pendulous and protruding beyond the tip of the nose. (Pl. XXXIV. fig. 4.)

A number of potsherds was found, upon which were painted or inscribed hieroglyphies (Pls. XXXIII. fig. 4; XXXV. fig. 4): all appeared to be purely decorative, with the possible exception of one, upon which was incised the day 2 Ahau.

The bottom layer in the cave contained a vast number of potsherds, for the most part rough domestic ware, amongst which were some fragments of polychrome ware: the proportion of these, however, to the common variety was decidedly less than in the 4-foot level.

This cave, and possibly other caves along the line of terraces, offers, probably, an unrivalled opportunity for intensive stratigraphic study, such as has never before been encountered at any Maya site.

Cave 2.—This cave was situated near the Joventud River, about 9 miles above the bridge. The entrance was in the face of a steep limestone cliff. The cave ran back for about 100 feet, being high enough for that distance to admit of one walking upright in it; beyond this it branched out into a number of low passages. On the floor of the cave lay a considerable amount of earth, upon which, near the entrance, were found a number of fragments of polychrome pottery, by one of our Nicaraguans. Before leaving, Clive-Smith found, by the side of the cave, a narrow, well-like hole, on throwing the light of the electric torch down which it fell on some objects which appeared like bones. He squeezed himself down the hole, and with considerable difficulty managed to retrieve several of them, together with a single potsherd of

painted ware. They proved to be some of the long bones of a human skeleton. They were almost black in colour, and very heavy, having undergone a process of partial petrification. They were lying on the surface, uncovered by earth, and the body to which they had belonged had evidently been thrown down the hole, and left as it lay.

Cave 3.—This consisted of a long, narrow fissure in the floor of the second terrace, on the south of the Pusilhà River. The fissure had been roofed over, but part of the roof had fallen in, leaving an opening just sufficiently large to admit of one's squeezing into the cavity beneath. At the bottom, lying on the ground, were found part of a human lower jaw, with some fragments of painted pottery. This fissure was left for future exploration.

NOTE ON THE INSCRIBED MONUMENTS.

(By R. C. E. LONG, B.A.)

THE contemporaneous dates of this site range from 9.7.0.0. to 9.15.0.0.0., and are all Hotun endings, except 9.9.13.0.0.0.; while all the Hotun endings, except 9.10.15.0.0., are Katun endings as well. The site is therefore a good example of the regular Maya practice of marking time periods by erecting monuments. It is also a fairly early site, there being few Old Empire sites dating from the Early Period (prior to 9.10.0.0.0.). This is of much interest from the situation of the site, intermediate between the Uaxactun-Tikal region, the earliest seat of the Maya, and Copan, the earliest city in the south-east. We now have a line of Early Period dates running along the whole eastern part of the Maya territory, from Copan in the south to Cobá in the north. In the Usumacinta region and the west generally, the sites seem to date from the Middle Period at the earliest, with the exception of Piedras Negras, which dates from 9.8.15.0.0. at least, and probably earlier, though no such very early dates have been found there as in the east. In the west, too, the erection of monuments ceased earlier, the latest at Piedras Negras being 9.18.5.0.0., and at La Mar, 9.18.10.0.0., and at Ocosingo in the extreme south-west, 9.19.0.0.0.

We may, therefore, conclude that the Maya civilization flourished in the north-east at Uaxactun from at least the latter half of Cycle 8; that at the beginning of Cycle 9 it extended to Copan, and, during the whole of the Early Period, continued to extend along the east coast up to Cobá; that near the end of the Early Period it greatly increased in power, as evidenced both by its spread towards the west and the development in art which commenced then and continued to increase during the Middle and Great Periods; and that towards the end of the Great Period it met with some reverse, which caused it to abandon the west and south and to fall back upon its base in the north-east. The discovery of dates in the Early Period at Cobá and

Chetumal Bay, and in the Middle Period at Jaina and Etzná, shows that the former view of a migration from the Old Empire territory to the New Empire must be abandoned. Rather was it the case that during Cycle 9 the whole Maya area, including Yucatan, was occupied by one people. This agrees with the tradition of Votan ruling over an empire of four parts, one of which was Yucatan and one Chiquimula (Copan), and the tradition reported by Diego Garcia de Palacio in 1576 that Copan was built by a great lord who came from Yucatan. "Yucatan" for the natives at Copan may well have included Uaxactun as well as the present Yucatan.

I agree with the view of Señor Juan Martinez Hernandez in his *Cronicas Mayas*, p. 23, that Uaxactun be the Chacnouitan of the Books of Chilán Balam. Under his correlation the date A.D. 179, Katun 8 Ahau, derived from the Books of Chilán Balam for the departure from Nonoual, is 8.7.0.0.0., and this, as he says, would agree with the Cycle 8 dates at Uaxactun. Señor Martinez Hernandez and Mr. J. E. Thompson have reached very similar correlations with the long count. Martinez makes 11.16.0.0.0. equal October 31st, 1539 (Julian), while Thompson makes it equal November 13th, 1539 (Gregorian = November 3rd, Julian). There is thus only three days difference, and on this point I think Thompson is right, as his correlation agrees with the new moon dates according to the Supplementary Series. But Martinez, as I understand him, accepts the generally received sequence of Katuns in the Books of Chilán Balam as settled by Brinton, while Thompson telescopes this by making it 13 Katuns shorter. On this point I think Martinez is right. The discovery of the Early Period dates in Yucatan has removed the former objections.

REPORT ON FURTHER EXCAVATIONS IN THE CAYO DISTRICT, BRITISH HONDURAS.

(By CAPTAIN E. L. GRUNING.)

AFTER the departure of Dr. T. Gann for England, another journey was undertaken, on May 18th, for the purpose of exploring certain caves and mounds in the Cayo District. (Text-fig. 3.)

After a somewhat slow journey up the Belize River, I and my small staff of one arrived at the Cayo and proceeded at once to Benque Viejo, where two mules and a horse were hired, and a start was made the next morning to a cave on a track that eventually led in the direction of Camp Six.

This was a cave visited sometime previously by Dr. Gann, but not explored to the end. A mound near the mouth proved to be composed entirely of fragments of coarse broken pottery, but I could not discover a single piece that was of any interest. Farther down the cave, however, we came to a smaller cavity leading from a sort of pit, with a joined stalactite and stalagmite in the middle which much

helped the descent. This small cave held a large number of broken pots of a coarse black earthenware, and was evidently the place where Dr. Gann had obtained his one whole specimen. We then explored the cave to the end and its numerous small branches, but failed to discover anything more, except small pieces of red pottery much water-worn and soft with long exposure to wet mud.

Some examination of a neighbouring recess in the cliff followed, but also without result.

As the two Indians who were then with me did not know of any further caves in the vicinity, I decided to return to Benque. On the journey one or two mounds were observed, one of which had been explored also by Dr. Gann, and it was decided to dig through a small one close by the track, but although we dug down to the ground-level nothing at all was found.

On the Sunday, at Benque, Mr. G. Busby, Government Surveyor, very kindly offered to show me some large mounds close to Succots, and these I decided to explore and refer to as A, B, etc., on the plan.

Mound A was started on the next morning, digging in from the west side from a cleft formed by an earth slide, and digging was continued at a depth of about 6 feet to the centre and a cavity was made some 10 feet across. Almost exactly in the centre, at a depth of 3 feet, a burial was discovered, but the skeleton was so rotten and so firmly embedded in the marl that it was quite impossible to expose it complete, but enough could be seen of the skull to show that it was lying almost face downward. At the foot of the body a flint javelin-head was found, and near the head nearly the whole of a painted plate. This had clearly been broken at the time of burial, as several of the pieces were superimposed on each other. Two small shells, each pierced, were the only other articles found, but as the mound is a very high one, at least 80 feet down one side, it is probably well worth further excavation. Lack of time to clear all the surrounding bush prevented a survey of the height and contour from being made.

At the eastern base of A lies the elongated Mound B, which was next entered from both ends. After some little work the men found that they were digging along a rough wall. This was only on an average 2 feet in height and extended for 34 feet. There was one opening 2 feet wide on the east side. At the depth of 2 feet a cement platform was uncovered which extends the whole length of the mound, and this we opened in the middle to a depth of 3 feet finding another platform underneath about 11 inches lower. Nothing was found here except some fragments of painted pottery at one end, a hammer-stone, and part of a granite rubbing-stone.

Work was then commenced at Mound C some $\frac{1}{4}$ mile to the north-east, the only finds consisting of another part of a rubbing-stone and many bits of coarse red pottery. Two men were instructed to clear the bush at the western end, and this was then found to point exactly to a mound to the south of the ruins at Xunantunich,

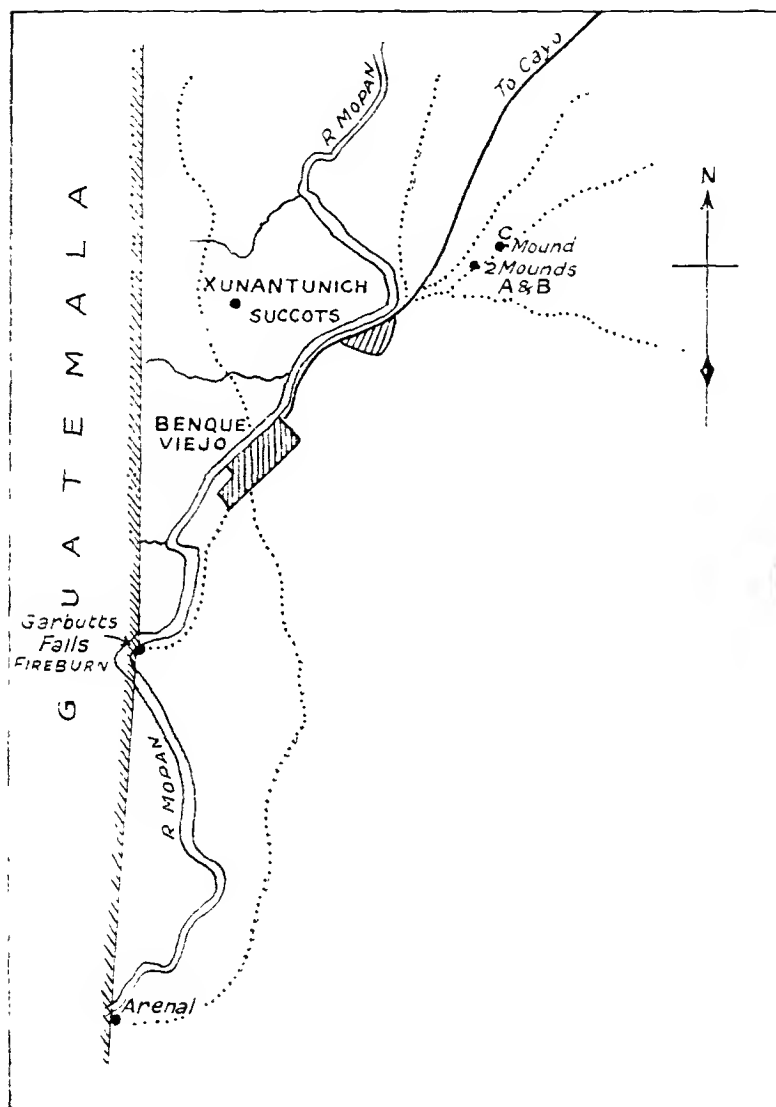


FIG. 3.—SKETCH-MAP OF EXCAVATIONS IN THE CAYO DISTRICT.

with a bearing of 250 degrees, the compass-bearing on the ruins themselves being 260 degrees.

About this time one of the men mentioned that he knew of another cave beyond the one previously mentioned, and this was visited and yielded several finds, the most important being an engraved vase, about 8 inches in height, with similar figures on either side (Pl. XXXIII, fig. 3). Several other vases were found, the pieces not all occurring in the same place and having evidently been washed out by water. This cave is somewhat difficult of access, but should, I think, be worth further investigation. Other finds consisted of several metates, one whole, and part of a black-and-white pot, which had been placed in holes or on ledges beyond the reach of water.

Close to Mound C. I discovered a cache, or what appeared to be a water-hole, which, on being opened, proved to have an entrance 2 feet 6 inches in diameter descending to an arched chamber about 15 feet across at the bottom. Much broken pottery of a coarse type was found at the bottom, but several necks of jars, one of rather unusual size, were taken out. The only other article found was a very small obsidian flake.

There are three other small mounds quite near, two of them elongated as the Mound B, and, like it, pointing directly to the mound near Xunantunich, but time did not permit examination of these.

Note.—Pls. XXXVI and XXXVII represent plaster casts of Stele D, E, and K, photographs from the originals of which are reproduced in Pls. XXVII and XXVIII. These casts were prepared in the British Museum from paper moulds obtained by the expedition, and have been added while the Report was going to press, since they form, in clarity of detail, a valuable supplement to the originals.



STELA C. (PLASTER CAST.)

BRITISH MUSEUM EXPEDITION TO BRITISH HONDURAS, 1928.

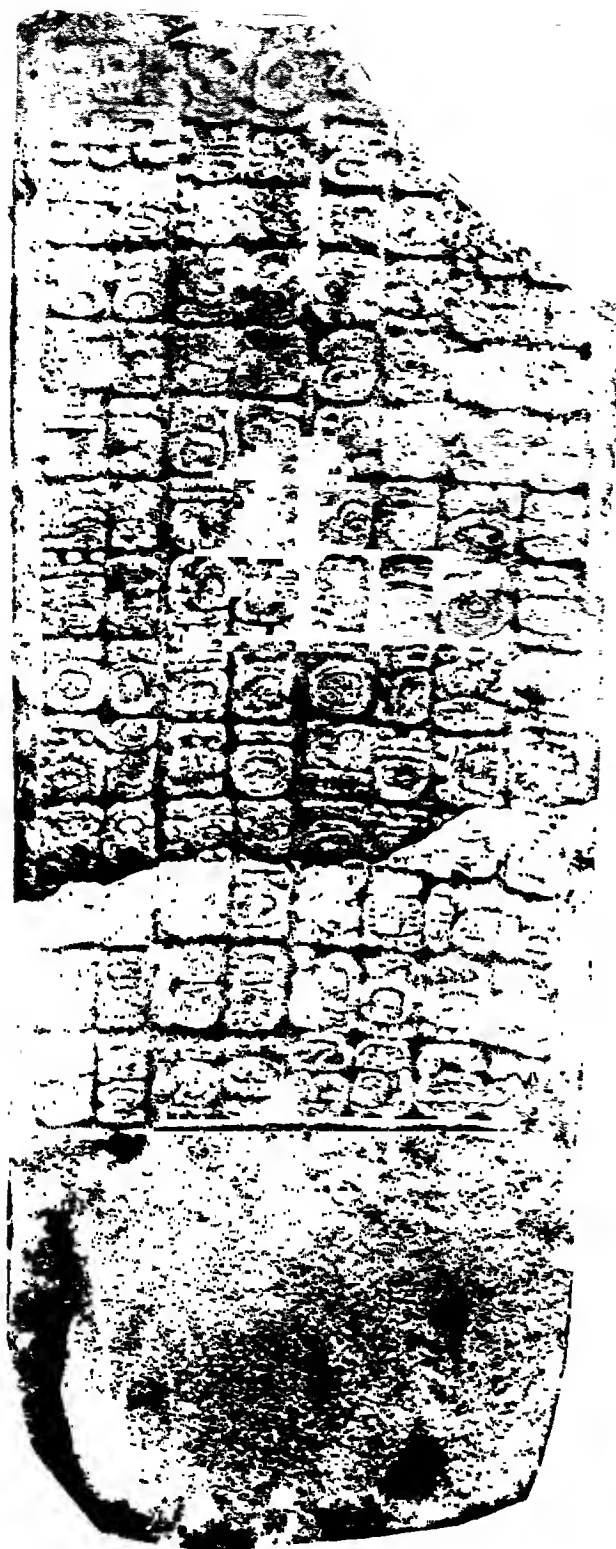


FIG. 1.—STELA D.



FIG. 2.—STELA E.

BRITISH MUSEUM EXPEDITION TO BRITISH HONDURAS, 1928,

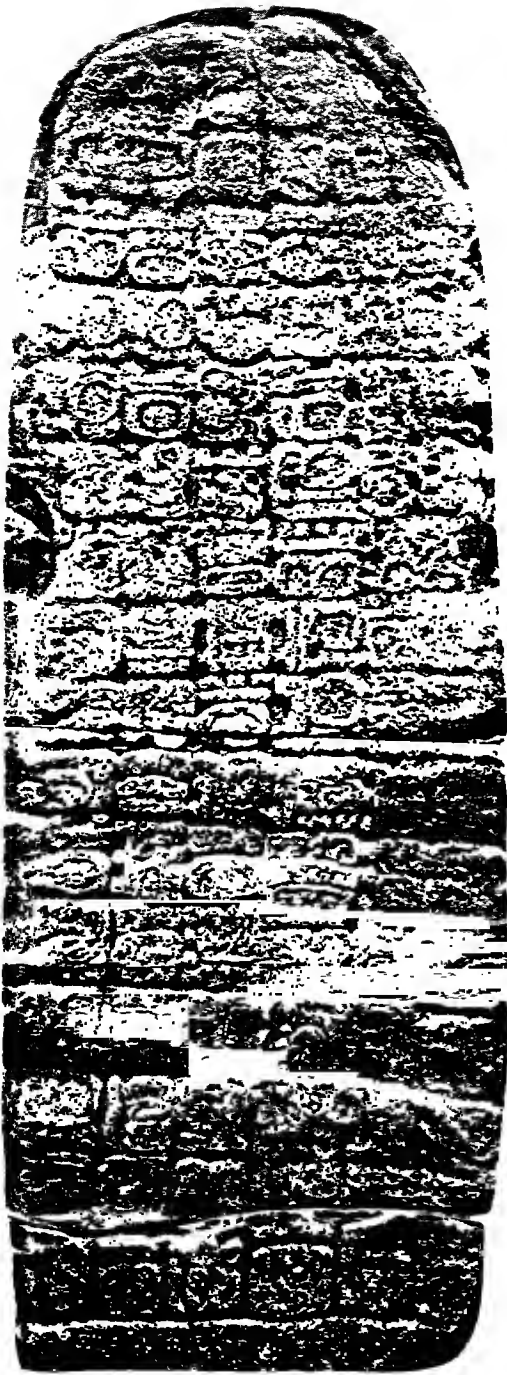


FIG. 1.—STELA H. (PLASTER CAST.)



FIG. 2.—STELA K.

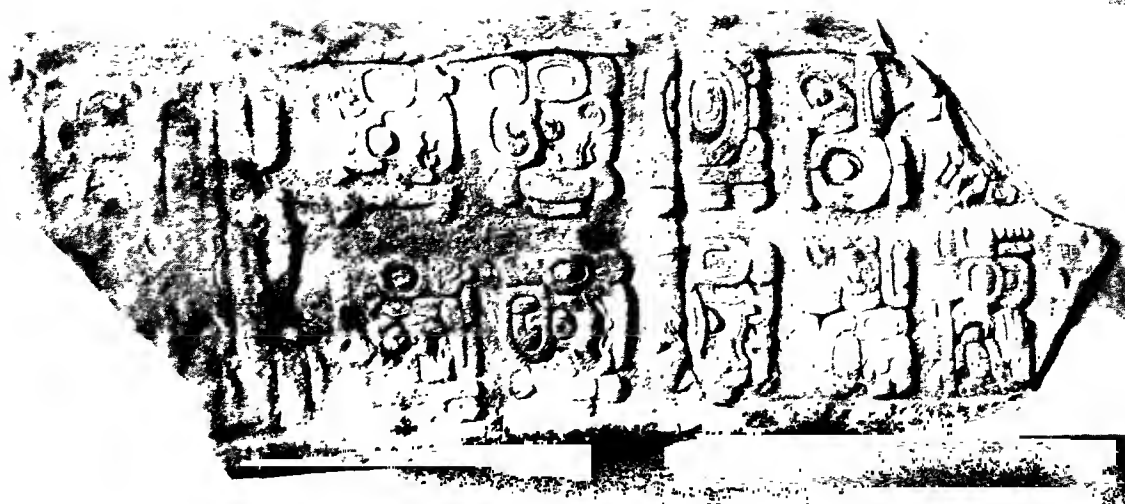


FIG. 2. STELA O. (IN THE BRITISH MUSEUM.)

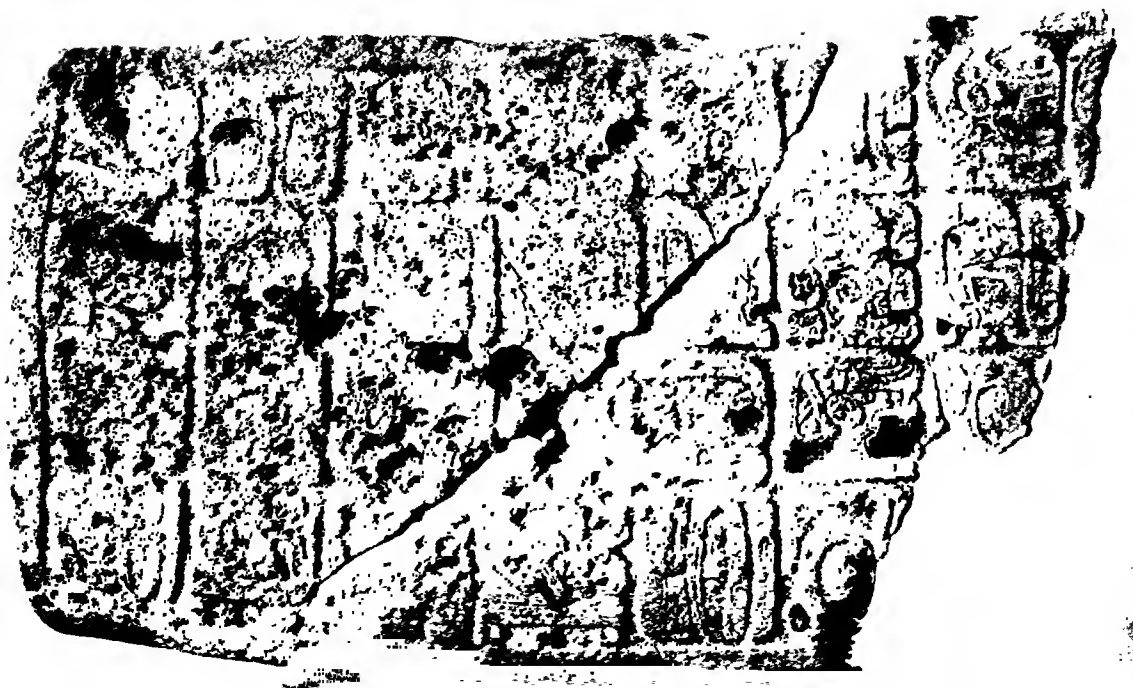


FIG. 1.—STELA M. (IN THE BRITISH MUSEUM.)

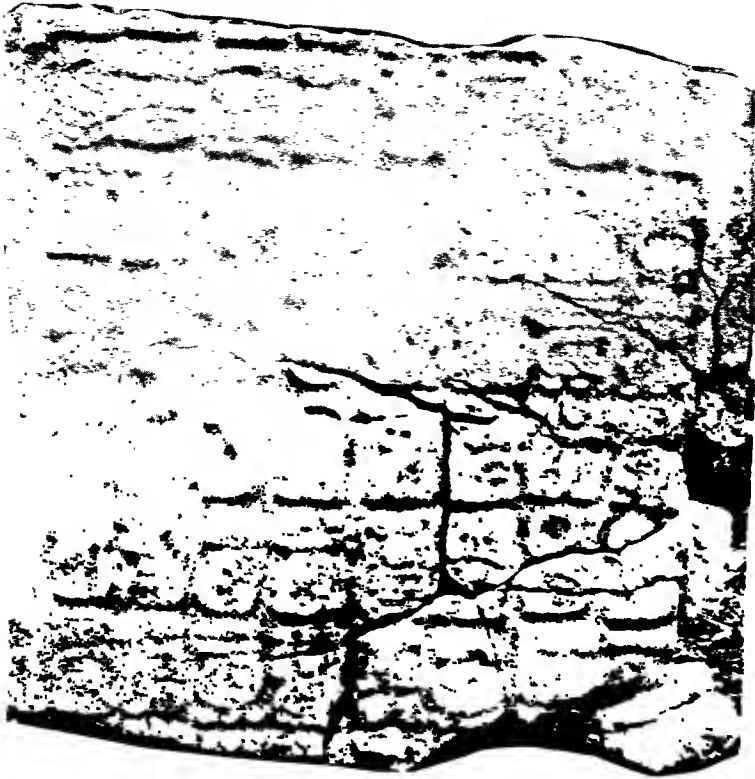


FIG. 1.—STELA P. (IN THE BRITISH MUSEUM.)

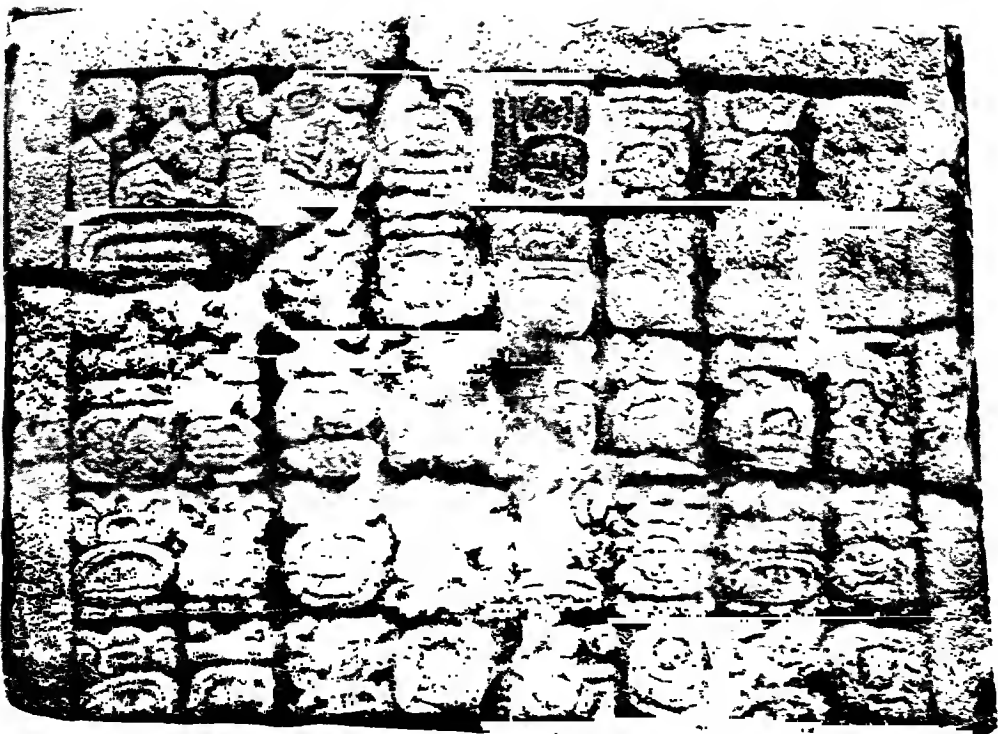


FIG. 2.—STELA Y. (PLASTER CAST.)



FIG. 1.—ABUTMENT OF BRIDGE.



FIG. 2.—GENERAL VIEW OF WORK ON THE PLAZA.



FIG. 1.—STONE MASK, PROFILE. (SCALE $\frac{2}{3}$.)



FIG. 2.—STONE MASK, FACE VIEW (See p. 340) (SCALE $\frac{2}{3}$.)



FIG. 3.—STELA R (See p. 337.) (SCALE $\frac{1}{3}$.)



FIG. 1.—POTTERY FRAGMENT OF CENSER FROM CAVE 1. (See p. 344.) (SCALE $\frac{1}{2}$.)



FIG. 2. HEAD FROM A POTTERY CENSER, FROM CAVE 1, PUSILHÁ. (See p. 344.) (SCALE ABOUT $\frac{1}{2}$.)



FIG. 3.—ENGRAVED POTTERY VASE FROM A CAVE NEAR BENQUE VIEJO. (See p. 350.) (SCALE $\frac{1}{2}$.)

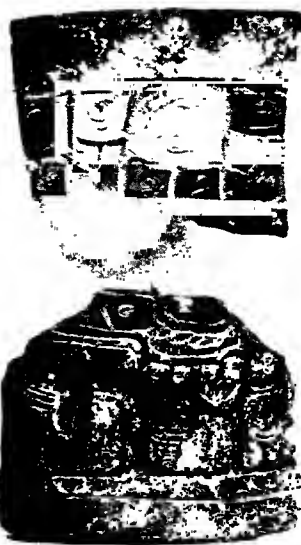


FIG. 4.—POTTERY FRAGMENTS, INSCRIBED WITH "GLYPHS," FROM CAVE 1, LEVEL 2. (See p. 345.) (SCALE ABOUT $\frac{1}{2}$.)

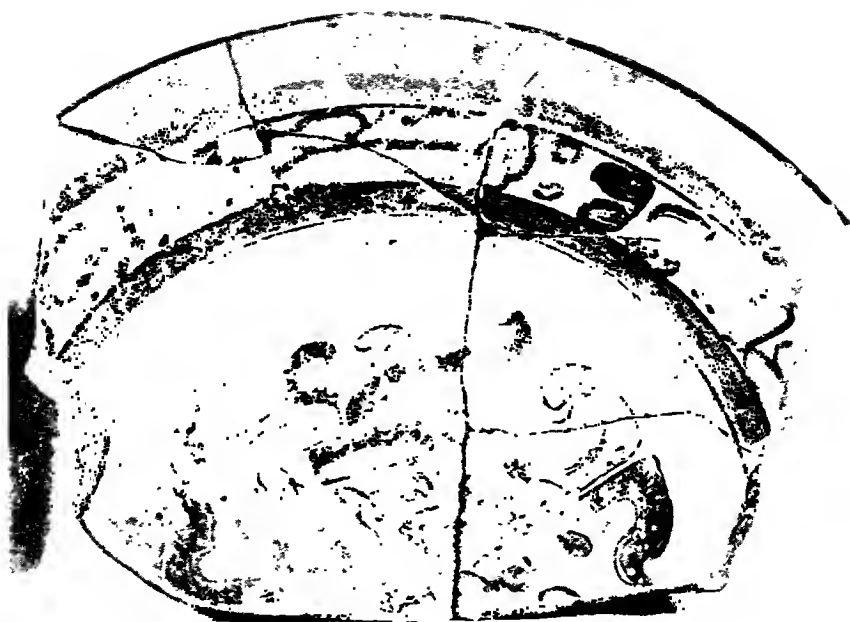


FIG. 1.

(SCALE $\frac{3}{4}$.)



(a)

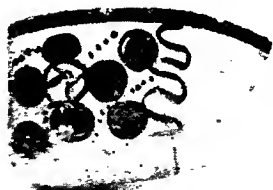


FIG. 2

(b)

(SCALE $\frac{1}{4}$.)



FIG. 3.

(SCALE $\frac{1}{2}$.)



FIG. 4.

(SCALE $\frac{2}{3}$.)



FIG. 5.

(SCALE $\frac{1}{2}$.)

FRAGMENTS OF PAINTED POTTERY: ALL EXCEPT FIG. 2 (a) FROM CAVE 1, LEVEL 2, PUSILHA. (See p. 345.)

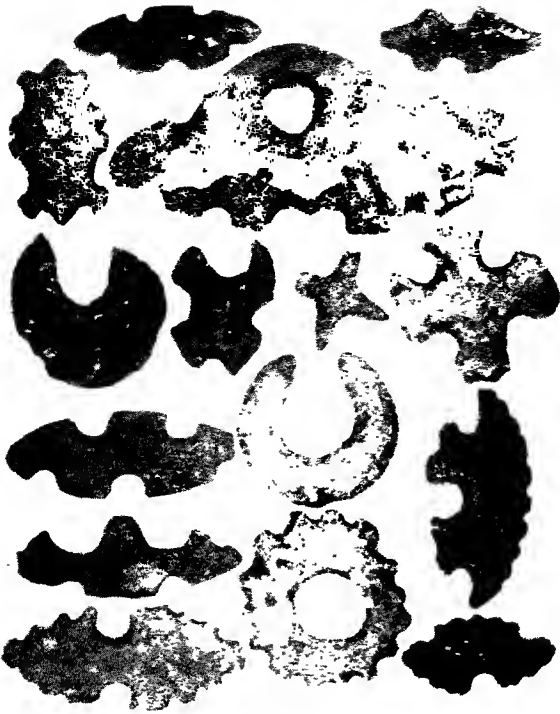


FIG. 1. "ECCENTRIC" FLINTS FROM BASE OF STELA I.
(SCALE ABOUT $\frac{1}{2}$.)



FIG. 2.---OBSIDIAN FLAKES FROM BASE OF
STELA I. (SCALE ABOUT $\frac{1}{2}$.)

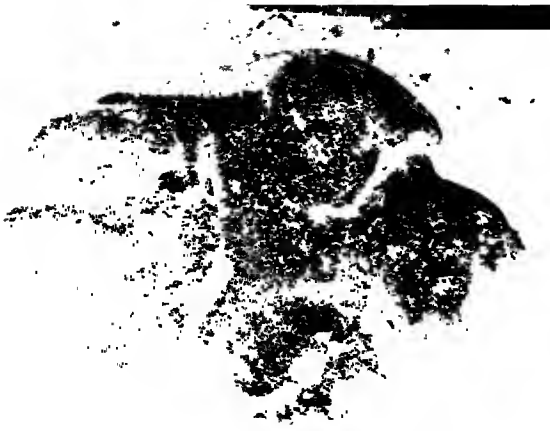


FIG. 3. --STONE ALTAR IN FORM OF A FROG
(See pp. 333, 339.) (LENGTH 33 INCHES.)

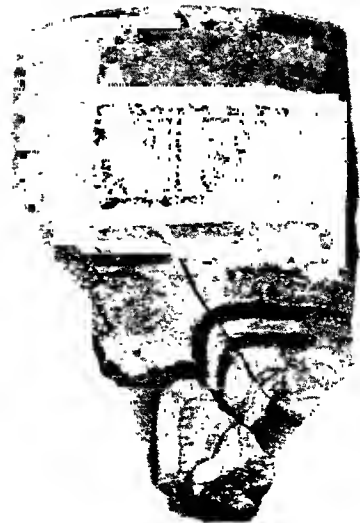


FIG. 4. --FRAGMENT OF ENGRAVED
VASE FROM CAVE 1, LEVEL 2.
(See p. 345.) (SCALE ?.)



PLASTER CAST OF STELA D (NO PL XXVII, FIG 1)

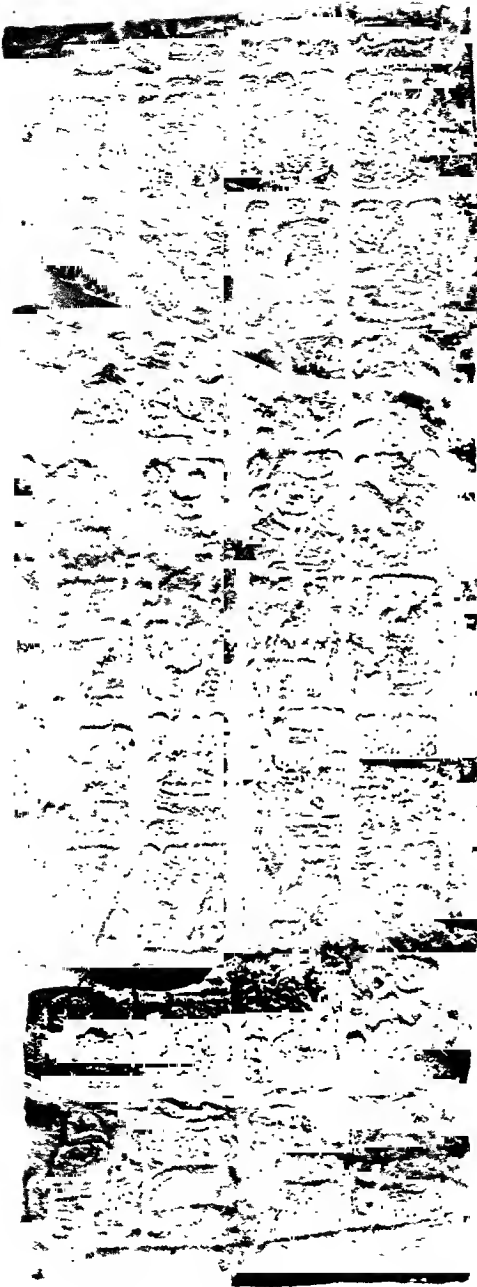


FIG. 1. PLASTER CAST OF SELLA I
(See PL. XXVII, FIG. 2.)

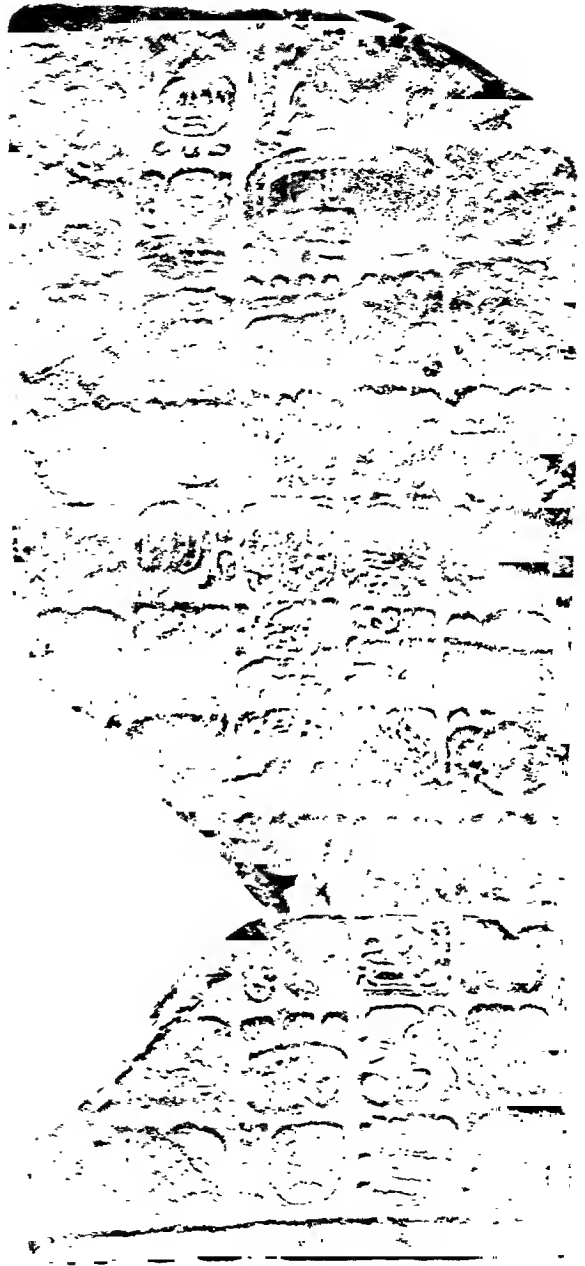


FIG. 2. PLASTER CAST OF SELLA K
(See PL. XXVIII, FIG. 2.)

RACIAL ANTHROPOMETRY : A PLAN TO OBTAIN INTERNATIONAL UNIFORMITY OF METHOD.

By M. L. TILDESLEY.

IN spite of the attempt made at Monaco in 1906 and at Geneva in 1912 to select and define measurements on the living body that should gain international adoption among anthropometric workers, there is still lamentable lack of agreement among the anthropometrists of this country, and not of this country alone. It is worth while, therefore, to enquire into the subject of how far standardization is essential to the progress of science, how much may be possible, and the conditions of its achievement.

WHERE STANDARDIZATION IS MOST ESSENTIAL.

Anthropometry may serve different purposes, and the measurements used will vary accordingly. Such purposes include the comparison of variations in size and proportions of the same individual at different ages or of different individuals ; or the comparisons of groups of people subject to special conditions (*e.g.* malnutrition) with similar groups not thus subject ; or of series of people paired in given degrees of consanguinity or groups of different ages, different sexes, different races, and so on. As the objects of measurement are various, so is the number of useful possible measurements infinite. To attempt to standardize them all would be idle ; nor in those lines of research where the worker himself can supply his own comparative data is there any advantage to be gained by making his measurements conform to those taken by others. It is equally obvious, however, that where the material required is so far-reaching as to be outside the possible capacity of the individual worker, progress beyond that limit depends on the standardization of such measurements as are essential to the enquiry. Of the various objects detailed above, that of race-differentiation and race-comparison is the one which most of all depends upon the co-operation of many workers over a considerable period in accumulating sufficient data to establish any well-based conclusions at all over the whole field. And this object—the characterization of racial types, the establishment of degrees of relationship, and the gradual filling up of many of the gaps in the story of evolution as we now know it—this object is the one towards which not only the Monaco-Geneva but other attempts also have been aimed, and which they have failed to achieve.

RACIAL ANTHROPOMETRY.

Anthropometry with this as its object is carried out under two very different sets of conditions—in the laboratory and in the field. That done in the laboratory

has the advantage of an unrestricted supply of instruments, and frequently also the opportunity of taking a large number of measurements, and it can therefore carry out a more intensive study of its material than anthropometry in the field; it is, however, limited in its access to racial material. If we must wait until adequate samples of all the races of mankind can be brought to the laboratory and persuaded to submit to extensive series of measurements, it is certain that we shall have to wait a very long time, and that in the meantime the mixing up of races which is proceeding ever more rapidly will be much further advanced, and the possibility of studying peoples now existing will have gone for ever. Work done in the laboratory also depends largely for its usefulness on the extent of its comparative data, and this again depends on the degree of standardization reached within different schools of workers, and, what is much more difficult, between the different schools. But at the moment it is with the smaller problem—smaller as regards the number of measurements—of field-anthropometry that I wish to deal.

Since the opportunities of field-measurement are frequently limited, we might first enquire as to the minimum that can provide a basis for any reliable conclusions. For in spite of the assumption, still to be met with in some quarters, that dolichocephalic, mesocephalic, and brachycephalic are terms adequate to differentiate one racial strain from another, it is, of course, a fact that a certain range of variation may be expected in this as in all other physical characters within a given race, that there will be very considerable overlapping of the range of each character with the corresponding range for other races,¹ and that it is only by the study of the combination of a sufficient number of the most racially variable characters in a sufficiently large sample of the population that races can be characterized and differentiated. The question is, then, how many characters, and which?—on how many individuals?

DATA REQUIRED FROM WORKERS IN THE FIELD.

The answer to the above question depends upon the statistician, and Professor Karl Pearson has given an answer as regards craniometry which may also be applied to measurements of the living body. He states in *Biometrika*, vol. xviii (1926), that given 50 to 100 individuals of one sex measured in a standardized manner in 50 to 100 races, an entirely satisfactory method of comparison and differentiation could be devised (p. 111): as regards the number of measurements required, he mentions 40 to 50 as desirable (p. 117). The possibilities of field-measurement are, however, limited, and could hardly supply the values of so many characters as these, on the living body, though it is possible to obtain them in laboratory study of the skull—the subject with which Professor Pearson is dealing. Failing the data

¹ The overlap may amount to complete correspondence in some characters (including sometimes cephalic index) in races that are very distinct from each other.

for this more exact treatment as regards the skull at present (and for ever as regards the living bodies of the great majority of the races of mankind !), he has designed a formula which provides " a good rough guide to racial association " (p. 117), to which is given the name Coefficient of Racial Likeness. The coefficient is designed to deal with short series, though its reliability is greatly increased if the series are longer. And the number of characters available should not fall below 20 (p. 107), including indices and angles—indications of shape apart from size. As, however, some of these may prove constant within a group of related races, and thus of no service in differentiating between them, yet very useful in distinguishing between this group and another : as also our knowledge of the best characters to use is so far very imperfect : it is necessary to take more than what would be the minimum number of characters appropriate to a single kind of comparison.¹ I suggest two dozen direct measurements (which, with the resultant indices, would amount to over 30 characters). To take these on not less than, say, 40 to 50 adults of one sex in a given racial group, would not be outside the possibilities of much field-work, and the results obtained would be very valuable indications indeed of racial relationships, even if not perfect. But the essential condition that this co-operative work shall not be useless, is that the measurements and technique shall be identical.

STANDARDIZATION.

This is the greatest problem to be dealt with. Of explorers with sufficient enthusiasm and desire to bring back results of scientific value from their explorations at the cost of great effort there is no lack : but the extent to which such expenditure of energy, time, and resources is frequently wasted, owing to our failure to standardize, and to secure that they have the opportunity of making their own technique right, is deplorable.

The problem of standardization falls into three stages : —

- (1) Agreement as to the characters to be selected for measurement.
- (2) The adequate definition of these characters.
- (3) Ensuring that the technique of all workers is the same—*i.e.* reducing to the lowest possible limits variations arising from
 - (a) difference of personal equation,
 - (b) difference in type of instrument used,
 - (c) inaccuracy of instrument.

THE SYSTEM OF MEASUREMENT THAT MIGHT BE ADOPTED.

On the occasion of the International Anthropological Congress at Amsterdam, in 1927, I took the opportunity of a certifying from the various anthropometrists with whom I came in contact what system of measurements was in use in the

¹ I owe this suggestion to Dr. G. V. Moant, who bases it upon investigations shortly to be published by him.

countries they represented. I cannot guarantee that in each case the facts gleaned thus in conversation with a single anthropologist reflect fully and accurately the general practice in his particular country, nor can I guarantee the infallibility of my own understanding and reporting: the conversations took place on all sorts of chance occasions, when it was impossible to take notes. But broadly what I gathered will reflect the facts, I think. In no country but France that I heard of was there much attempt at following the Monaco-Geneva convention, and even in France I gathered there was far from unanimity. Representatives of Germany, Switzerland, Norway, Poland, Russia, and Jugo-Slavia told me that the system defined in Martin's *Lehrbuch*¹ was the one adopted in their countries, though in some cases I was told "with some modifications." From an American I understood that anthropometrists in the United States were by no means unanimous, but that Martin's measurements and definitions were among those that were a good deal followed, even if sometimes in a modified form. Altogether I concluded that more anthropometric work was being carried on on the basis of Martin's *Lehrbuch* than on any other system, and that, therefore, there was more hope of eventual general agreement on this basis than on any other.

The next question is how far Martin's definitions have been modified or further defined by those who use them: and, again, how far there is difference of interpretation even where people suppose they are doing the same thing. The answer to the first question is one that needs to be given in detail by each anthropometrist attempting to follow Martin's system, and the reason for it stated, whether it be inadequate definitions, or unreliable results, or any other objection, but that some modifications have been made was shown in my enquiries. Then as to unrecognized differences of interpretation: my questions brought out the fact that this exists on one important point among the followers of Martin, and I do not doubt that there are others. This point is whether, in taking diametral measurements on the head, pressure is exerted on the flesh or whether contact-measurements are aimed at. Now, Martin only occasionally includes instructions on this point in his definitions of individual measurements (*e.g.* it is mentioned for least forehead-breadth [No. 4, p. 159], and greatest head-length [No. 1, p. 157]). And though he does mention earlier (p. 111), in describing the instruments used, that in most head-measurements no pressure should be applied to the skin, it is quite possible for this direction to be overlooked by people referring to the descriptions of characters measured: also the exceptions to the rule of no pressure are not definitely indicated. My question, however, to those who claimed to follow Martin's system was simply whether in taking diametral head-measurements such as head-length, head-breadth, bi-gonial diameter, etc., they used pressure or not. The answers were about equally divided, and in each case apparently given without any idea that the opposite method might be used by others. Yet the difference in the result might amount

¹ Dr. Rudolf Martin: *Lehrbuch der Anthropologie*, 1914.

to several millimetres (*e.g.* in head-length : less in head-breadth), and, unlike the kind of error of observation that is as likely to diminish as to increase the true reading, it will be reflected in the mean values obtained for a series, and lead to erroneous deductions when such values are compared with those of another series measured by the opposite technique.

Summing up the result of these various observations, to take no others, I arrive at the following conclusions :—

- (1) That if the agreement essential to far-reaching co-operative racial study is ever to be achieved, it is most likely to be obtained on the basis of Martin's *Lehrbuch*, since more schools of workers have committed themselves to this than to any other system of measurement :
- (2) That Martin's *Lehrbuch*, however, possesses defects which lead to the results produced by different schools of workers on this basis being sometimes non-comparable.
- (3) That a way of remedying some of these defects would be an invitation to all schools of anthropometrists who have tried out the measurements from the definitions and directions given in Martin's text-book to communicate their detailed criticisms, based on practical experience. Also, to say whether any changes made in the new edition of the *Lehrbuch* (1928) meet their objections.¹

From whom should this invitation emanate ? I suggest a small international committee, which would naturally include a representative of the German school and tradition which the eminent author of the *Lehrbuch* created.

SELECTION OF MEASUREMENTS FOR FIELD-WORK.

The two dozen measurements on head and body, which are about the minimum that field-work can secure with the hope of getting results of any value must, no doubt, be selected according to various practical considerations, such as what it is possible to obtain in field-conditions and on people who put limits to the amount

¹ I wish to stress the necessity of adequate practical experience before such criticisms can attain their full value : many of the unsatisfactory definitions that have already wasted human effort—among others those of Monaco and Geneva—bear marks of having been conceived in discussion round a table without ever having been put to practical test, and it is most unlikely that Martin's system would ever be perfected by this method alone. It is true that merely in reading anthropometrical directions through with care one can often detect ambiguities and practical difficulties, but that is only a beginning. Perhaps I may be allowed to add that, although I myself have seen some ambiguities when thus reading, and, partly on these observations, partly on the criticisms of other workers who have applied the definitions, and partly on the evidence given above, am convinced that imperfections of definition exist, I do not claim to be in a position to comment on the majority of the definitions in this text-book in any detail, since my anthropometric experience has not been gained on these particular measurements except to a very small extent.

of measurement they will undergo. Another factor in decision is what measurements have already been taken on a considerable amount of material. The theoretical considerations that seem important are these :—

- (1) That the characters chosen should not be too highly correlated among themselves in the individual members of a race, being as far as possible independent of one another.¹
- (2) That the higher the inter-racial variabilities of the characters (*i.e.* the more their *average* size varies *from race to race*) the more valuable they are for racial differentiation.
- (3) That the lower the inter-racial correlations between the racial means of the characters chosen, the more satisfactorily will they serve to "index" the race.

Now, it is true that the statistical constants which are needed to give an exact measure to inter-racial and intra-racial variabilities and correlations of characters on the living head have not for the most part been ascertained, and are not, therefore, at our service. But clues to the probable correlations of certain characters of the living head may be found in those worked out for corresponding measurements on the skull. The most abundant data of this kind available have been published by Professor Karl Pearson and Miss Adelaide G. Davin, in their paper "Biometric Constants of the Human Skull."² Not only does the material there treated give a considerable number of intra-racial statistical constants but, from these, certain principles emerge which appear to govern the degree of correlation, and may be used as a guide in selecting for our purpose characters concerning which we have no such exact data.³

On inter-racial constants and correlations our information is much more meagre, and, indeed, must remain very imperfect until the objects towards which this paper is

¹ The Coefficient of Racial Likeness makes no allowance for intra-racial correlations, and requires, therefore, that these should be kept as low as possible.

² *Biometrika*, xvi (1924), pp. 328-63.

³ Thus, in a long series of 1,700 Egyptian skulls (XXVth to XXXth Dynasties) there was found to be no correlation between the *shape* of different features (as measured by indices), unless the features had some related parts. For example, there was no tendency whatever for a certain shape of nose to be associated in the individual with a given shape of calvaria; on the other hand, there was found a fairly high degree of correlation between proportions of nose and upper face expressed by the correlation coefficient $r = -0.4697 \pm 0.0186$, \pm : negative owing to inversion of the second ratio; because the nasal height forms a large element in the height of nasion above alveolar point, and nasal width in the width of the upper maxillaries. Between nasal and orbital proportions again there was a very moderate degree of correlation ($r = -0.2964 \pm 0.0210$, right orbit, \bar{x}), because, though there was an underlying common factor (nose height being parallel to and structurally associated with orbital height), the association here was slighter.

Apart from correlations of varying degrees of intensity between pairs of characters, whether indices or absolute measurements, which "cover" one another as in the instances given above :

directed have been achieved—the measurement *by uniform technique* of adequately long series in an adequately large number of races. Work is, however, going forward to extract such first approximations to the truth as are possible from the frequently unsatisfactory comparative data secured up till now; and, meanwhile, we have the inter-tribal correlations of a few characters for the castes and tribes of Bengal on data provided by Risley,¹ and the inter-racial variations and correlations for rather more characters based by Tshepourkowsky on material collected by many different workers with varying techniques.²

The above, I think, are the main theoretical factors to be considered, nor would it be difficult to find on the whole body the necessary thirty-odd characters and indices that, as far as our present knowledge serves us, do not conflict with these conditions. But the choice will no doubt be limited by two psychological factors—the psychology of the subject to be measured, and that of the anthropometrists who have already invested much time and effort in the other schemes of measurements. As regards the latter, certainly the measurements which have already been applied to the largest amount of material have been furnished with a big argument in their favour, and should only be omitted from the special list on good reason shown. But the psychological struggle in the anthropometrist's mind is more apt to centre around what he in particular, or his particular school, has used, rather than on the total amount of work done. There is a way out from his dilemma, if the choice is too hard: by extending his list of measurements to include the agreed characters, and by using both his own method of measuring them and the agreed method, where these differ, he can make his new work comparable with his old and also available for much comparative work in the future.

CONDITIONS FOR ENSURING STANDARDIZATION OF TECHNIQUE.

Exact definitions are essential to securing a uniform method, but they are far from being the only essential: there is still one of the greatest stumbling-blocks

and apart from very high correlations between homologous features (*e.g.* right and left orbit), there was also found a moderate amount of correlation between characters linked in no such manner, but tending to vary together only by reason of their belonging to a larger or smaller head. These characters were chiefly the larger diameters and arcs. Thus, maximum length and breadth in the Late Dynastic Egyptian skull tended to increase or decrease together to the extent of $r = -0.3971 \pm 0.0191$. Where, on the other hand, the characters measured were non-overlapping complementary parts of a larger feature (*e.g.* the frontal, parietal, and occipital portions of the whole sagittal arc), either the positive "growth correlation" instanced above was slight (frontal and occipital, $r = -0.1545 \pm 0.0222$, $\frac{1}{2}$) or was transformed into a negative correlation by the tendency for one bone to compensate for the size of another (parietal and occipital, $r = -0.3422 \pm 0.0247$, $\frac{1}{2}$). The correlations due to common or "covering" factors are of the class known as "spurious"; the other correlations instanced may be regarded as "organic."

¹ *Biometrika*, ii (1902-3), pp. 355 ff. Measurements taken by three different workers following the same definitions.

² *Ibid.*, iv (1905-6), pp. 286 ff.

to be overcome, namely, difference in personal equation. Slight differences of method in the identification of the terminals of measurements—such as nasion, acromion, etc.—or differences of position, or of pressure, are bound to arise among different operators: and here we have a source of discrepancy in result that it requires the most careful precautions to keep within the smallest possible limits (total elimination is impossible). As regards differences of pressure where pressure is used, this difficulty, I think, may be dealt with mechanically. In the question of contact-measurements versus pressure-measurements referred to above, if the choice lies between contact and an *undefined* amount of pressure, then contact-measurements surely have the much stronger case. But a method has been devised by Mr. G. G. Campion, of Manchester, for use in his researches on the face and jaws, by which a simple pressure-gauge is attached to the part of the instrument which comes in contact with the body of the subject. Thus a standard pressure can always be applied, and a check is provided both to the worker's own variability and the differences between workers in this respect. Given standard pressure, the alternatives of contact- or pressure-measurements stand more on an equal footing, but a decision has still to be made between them.¹

There still remain, however, other differences of personal equation that cannot be dealt with so simply. The best means of regulating them are:—

- (a) By establishing a sort of "apostolic succession," by which each operator has the measurements *demonstrated* to him (not merely defined verbally) by another who has himself received the same practical tradition handed down in an unbroken line from a starting-point common to all the nations co-operating in this work. Such a method of instruction is probably carried on already within all schools of anthropometry: and, as regards the system of Professor Rudolf Martin, the printed instructions have been supplemented by personal demonstration and tradition in other countries than the one in which they originated.² There should be no serious difficulty in establishing lines of contact on a larger scale.

¹ Factors in favour of contact-measurements are that they can be supplemented by measurements on shadow-profiles such as are taken at the Biometric Laboratory, University College, London: or by measurements on photographs in which distortion can be reduced to a negligible quantity: or on tracings of the outline of the head in any plane, such as are obtained by an apparatus recently designed by M. l'Abbé Émile van Reeth, Aumônier de la Prison à Forest, of Brussels. The latter considers that native peoples submit more readily to having such outlines of themselves made than to extensive measurements. Another argument in favour of contact-measurements is that a pressure-gauge adds somewhat to the price of the instrument, and might also prove vulnerable to some types of climate.

² My enquiries elicited that practically all the anthropometry now practised in Germany, Switzerland, and Norway could trace an unbroken line of practical demonstrations back to Professor Martin. I did not ascertain whether this was so for the other countries which had adopted his system.

- (b) By the regular comparison of measurements repeated by two or more operators on the same individual. This is the most important essential of all—it is the final test of uniformity. Is it insisted upon, regularly, among all anthropometric workers? I do not know, but I am harassed by doubts!¹

Not only should such tests be made by all who take measurements on the living body, but the results should be put on record. Let anthropometrists A, B, and C each independently measure the same dozen subjects twice over, and if there is divergence endeavour to trace and correct its cause. A series of such tests in which A takes part from time to time will give a reliable measure of A's own variability, and by a number of records involving two or more operators a measure of the average effect of the difference of personal equation within a given school of workers may also be obtained. Not having these measures, how shall we know within what limits the recorded figures of an investigation may be taken as correct? Let workers be tested against one another and against those who are responsible for instruction in anthropometry in our colleges: let these teachers, as they come in contact with each other in their own country, test themselves together from time to time: and let the International Congresses of Anthropology be made a regular occasion for the representatives of different countries to measure the same individuals to the number of a dozen or so and test the uniformity of their technique. Only in so far as such checks are maintained can the results of anthropometry be rightly considered comparable.

An illuminating analysis of the various definitions of 16 measured characters of the living head as used by the authors of 10 anthropometrical publications dealing with long series, has recently been published by Professor P. C. Mahalanobis.² Of the considerable number of comparisons between races taken in pairs that it should have been possible to institute on this material, three-quarters were ruled out by differences in verbal definition alone. Of those measurements that were not explicitly different from each other, some were so incompletely defined as to necessitate their rejection if certainty of agreed definition be insisted upon: and if, further, any guarantee of identical technique in measurement be required, the material available as the result of the great labour spent on the work of measuring becomes pitifully small. And yet all of these things cause differences in the resultant figures, and impair their value for comparative purposes—that is, for the only purposes they could serve. That they are often treated as comparable without these conditions is a fact: not only figures produced by workers who professedly follow the same system.

¹ Dr. T. Wingate Todd and his collaborators at the Hamann Museum, Cleveland, Ohio, may be cited as attempting in their work to measure and allow for variabilities arising from these and other causes.

² *Biometrika*, xxa (1928), pp. 1-31. The authors in question are Koganei, Kubo, Von Luschan, Sarasin, Hrdlicka, Dudley-Buxton, Shirokogoroff, Lundborg and Linders.

but even figures taken from workers who either define their measurements differently,¹ or do not define them at all, are sometimes lumped uncritically together and treated as sound material for conclusions. We get no farther by these methods—such conclusions may merely muddy the wells of truth.

Another source of error, more common, I think, than is generally recognized, lies in the instruments used. Some of us are apt to put too blind a faith in the accuracy of the instrument-maker, or to go on confidently using a once reliable instrument after some unnoticed warp, or bend, or wearing down has rendered it perhaps seriously inaccurate. Instruments do need frequent testing, and it is sometimes only by bitter experience of months of work vitiated by instrumental defects that this fact is really brought home to us. This source of error, however, unlike many others, lies within the power of the individual to detect and correct.

SUMMARY OF CONCLUSIONS.

To sum up then: Anthropometry of the living is essential to the characterization and differentiation of the races of mankind, but the field to be covered is so large as to necessitate the co-operative effort of a great many workers—more than one laboratory, or even than one country, can supply. For their combined effort to be of any value it is essential that the results of their work be comparable. This involves—

- (a) that they all measure certain agreed characters, the minimum number of direct measurements that will yield any results worth while being not less than about 24:
- (b) that these characters be defined exactly and without ambiguity, and that the same definitions be accepted by all workers:
- (c) that the written definitions and instructions be supplemented by practical demonstrations, this practical tradition and technique starting at one source and being handed down to all workers:
- (d) that there be regular testing for differences of measurement due to personal equation, with a view both to obtaining a measure of the variability of each individual worker and of differences between workers, and to keeping variations reduced to the narrowest possible limits.

¹ If they do at any rate define adequately, their figures can be made fairly comparable with those for other series measured differently, by means of the results of experimental work such as is being carried on at the Hamann Museum and elsewhere in America. In this, the same series of individuals is measured by the different methods, and the mean value, standard deviation, etc., of the difference in result is determined. We cannot assume that the difference would be exactly the same for all series as for the heterogeneous whites and negroes that are available in the U.S.A., but it would be of the same order. As the results of this experimental work become available, we can use them to correct otherwise non-comparable data.

As the system of measurement on the living as set out in Professor Rudolf Martin's *Lehrbuch* seems to be more widely followed than any other, I suggest that this system is the one that has most chance of common adoption. The 1914 edition is, however, unsatisfactory in some points: the 1928 edition has not yet been widely tested. I suggest, therefore, that a representative of Professor Martin's school and an international committee of about three invite detailed criticism from those who have found Professor Martin's directions ambiguous or otherwise unsatisfactory. If it were not desired to go into the matter of all the measurements recommended in the *Lehrbuch*, a number of those that have been most frequently used should be selected, and practical criticism of these invited, with a view to—

- (1) reducing them to the two dozen that can most readily be obtained on primitive peoples, and at the same time be the best from the statistical point of view:
- (2) ensuring by practical experiment that the definitions and instructions are as full and unambiguous as it is possible to make them.

If this point can be reached, the committee of three should by experiment ensure that their technique is as exactly the same as it is possible to make it, and should afterwards be prepared in their own countries to pass on the technique by practical instruction to those who wish to adopt the same methods.

The above is a practical suggestion as to how the end I have outlined may be achieved. There may be other ways, but unless some such means of standardizing measurements is found, much work will continue to be wasted, and much good team-work will continue to be crippled by lack of comparative data too extensive for a small team, however good, to supply unaided.

In conclusion, I would stress for explorers and others the fact that anthropometry is not an obvious and easy matter, careful instruction and practice are a very necessary preparation, both on account of the pitfalls that beset the beginner, and because his results will be useful only in so far as they are accurate and can be compared with other results. Until professional anthropometrists are all agreed upon measurements and technique it will be well for him to enquire of any prepared to instruct him, how big a body of work has been done, and is likely to be done, by their methods, and what safeguards are taken, to ensure that all workers of that school have a uniform technique. Unless he can get instruction that is satisfactory from these points of view, let him save his pains and his effort and be reconciled to wasting the great opportunities that his work may afford, for without these conditions they will be wasted in any case.

NOTE.

At a Meeting held on January 15th, 1929, at the Royal Anthropological Institute, the Joint University Committee of the Royal Anthropological Institute, representing the bodies throughout Great Britain interested in the teaching of, and research in, Anthropology, recommended the Council of the Institute to submit Miss M. L. Tildesley's paper on "Racial Anthropometry" to foreign anthropologists with a view to concerted action on the lines suggested therein.—[Ed.]

THE INCIDENCE OF PHTHISIS IN RELATION TO RACE-TYPE AND SOCIAL ENVIRONMENT IN SOUTH AND WEST WALES.

By EMRYS G. BOWEN, M.A.,

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THE object of this paper is to summarize the results of an investigation carried out under the first award of the Cecil Prosser Research Scholarship in Tuberculosis, Medical School, University College of South Wales and Monmouthshire, Cardiff. An attempt has been made to outline the physical anthropology and other sociological features of certain areas in Wales in such a way as to show their relation to the incidence and distribution of certain types of tuberculosis.

The fact that detailed observations in physical anthropology have been made during the last twenty years in many districts in Wales, by members of the Department of Geography and Anthropology of the University at Aberystwyth, under the direction of Professor Fleure, makes Wales an especially suitable area for an investigation of this kind: and, furthermore, the fact that the physical features of the country have given us such a variety of conditions, both environmental and human, within so small a compass, adds considerable value to this kind of work.

An analysis of the observations upon physical anthropology illustrates that we have a great variety of types living side by side with one another in the present-day population, but with a marked tendency for one or other particular type to be conspicuous or to predominate in a local sample, thus enabling us to mark off rather well-defined areas that can be contrasted anthropologically [1].

Cardiganshire has received much prominence in this anthropological survey of Wales, and has also attracted considerable attention by having one of the highest tuberculosis death-rates of all the English and Welsh counties. Consequently, after consultation with the Professor of Tuberculosis at the Welsh School of Medicine, Cardiff, work was begun in Eastern Cardiganshire.

Cardiganshire may be divided physically into a coastal plateau and a high plateau, bordered by a rather sharp westward slope showing some finger-like projections above the coastal plateau. The high plateau culminates in Plynlymon (2,468 feet) and a great deal of its surface is above the 800 feet contour. It is a sheep-rearing region, of sparse population and poor communications, with much cold boulder-clay soil. The valleys of the coastal plateau support a larger population mainly dependent on stock-raising. Such is the country in the northern section of Diagram I. A zone of geological faults cuts through both plateaux E.N.E.-W.S.W., and parts of it are occupied by the Ystwyth and Wyre rivers.

South of the Wyre for some distance the coast-line is lower and more approachable, but the coastal plateau reaches to the sea cliffs south of New Quay. Behind the approachable coast, between the Wyre and the Aeron, is the moorland of Mynydd

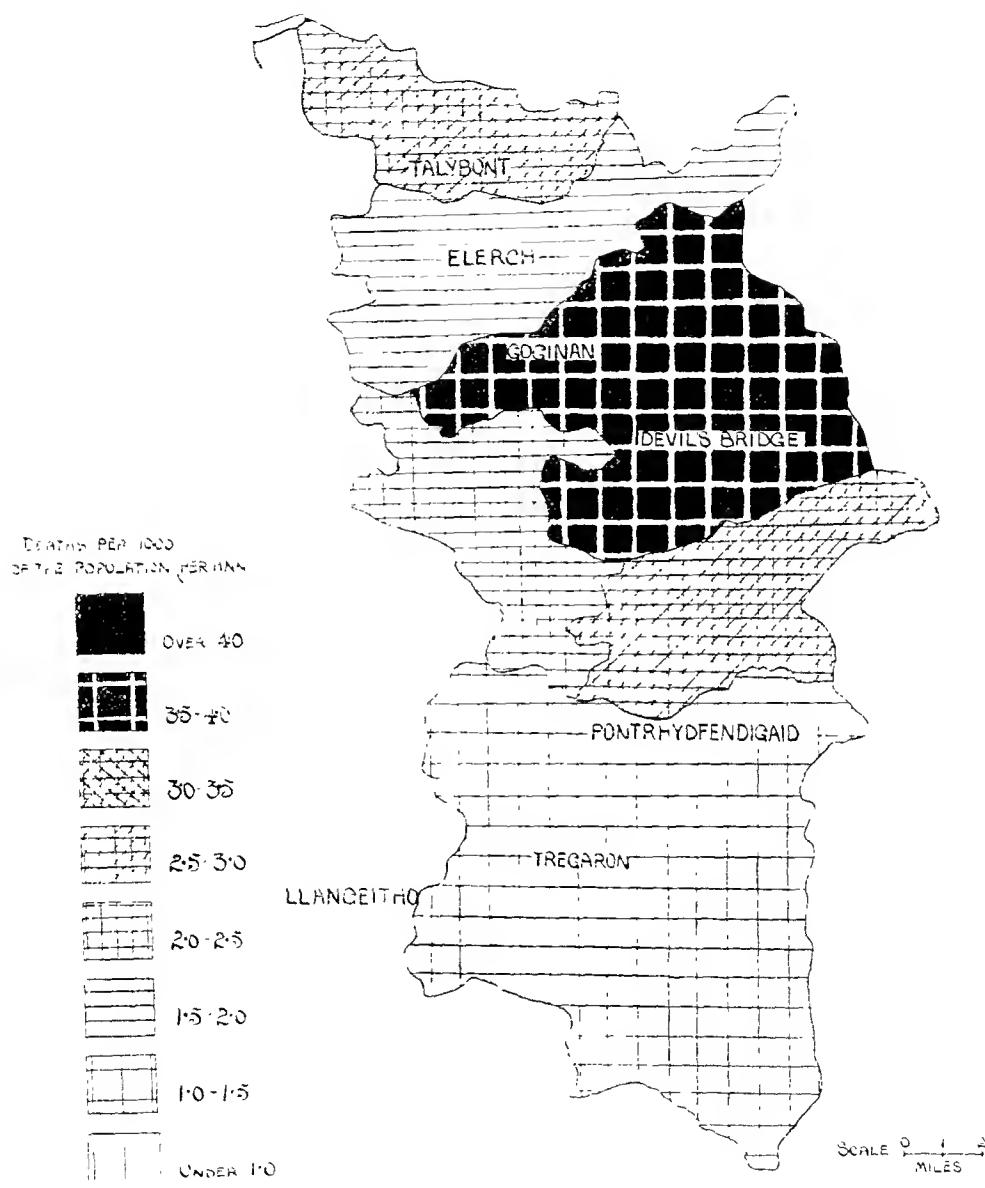


DIAGRAM I.—EAST CARDIGANSHIRE: DISTRIBUTION OF TUBERCULOSIS MORTALITY, 1916-26.

Bach, and beyond this again the swampy central section of the Upper Teifi, with much lowland but with the southward continuation of the Plynlymon moorland in the background. This country forms the southern section of Diagram I.

The northern section, as we have seen, is peopled mainly by sheep-farmers living in their scattered dwellings on the mountain sides. The lower reaches of the valley-ways, however, with better soil and more lowland, grow a little wheat, but the farmers rely mainly on stock-raising. This phase is more marked in the lowlands to the south of the Ystwyth-Wyre line. Thus, in short, the northern area, with the exception of the lower valley-ways of the west, may be said to be a great sheep-farming area, while the southern area, with the exception of the south-eastern mountain zone, may be said to be a stock-farming region, raising crops wherever the land is suitable.

Professor Fleure, in a very detailed survey [2] of this region, found the Plynlimon country of the north to contain a proportion of individuals with very long heads, and possessing other features which seem to indicate that they are survivals of Anagnæan types of man still persisting in this remote moorland. The fringing areas of this northern moorland show unmistakable evidences of the predominance of the short, dark, long-headed person, with cephalic index between 75 and 79. This person generally has dark-brown hair and dark eyes, and is often below the average in stature, and is known to anthropologists by various names, including those of Mediterranean or Neolithic type. South of the Ystwyth-Wyre line we notice a distinct change in the physical characteristics of the inhabitants. Here we find alongside of the short, dark, long-heads a number of fair people of rather bulky build, with strongly developed cheek-bones, and a head rather shorter and therefore relatively broader, than that of the little dark long-heads of the north. This fair type abounds on the relatively open coast south of Llanrhystyd, and stretches up the Wyre valley and across the low hump of Mynydd Bach to Llangertfo, Llanddewi Brefi, Tregaron, and Pontrhydfendigaid [3]. Comparing the proportions of fair men in the Cardiganshire population, we notice that the percentages are 17.5 in the north and 25.3 in the centre. This suggests that there is a very strong fair element south of the Ystwyth-Wyre line. At Tregaron, among the men measured were 34 who could trace their 4 grandparents as natives of the district. Of these 34 concentrated essences of the neighbourhood, 9 (that is, 26.5 per cent.) had red hair, but only 10 (29.4 per cent.) were dark dolichocephals [4]: 6 of the 34 were pure fair. The red element is evidently a feature locally. The conclusions to be drawn from Professor Fleure's paper are, that the northern plateau region is a home of the short, dark, long-headed type, with a nest of interesting survivals of very early types of man in its innermost recesses: while south of the Ystwyth-Wyre line, fair people, often tall, well built and medium-headed, form the bulk of the population, with an interesting nest of red-haired folk in the neighbourhood of Tregaron.

Diagram I shows the distribution of the tuberculous deaths per 1,000 of the population for the last decade (1916-26) in Eastern Cardiganshire. One of the most striking features of the map is the great range in the death-rate from between

3.5 and 4 deaths per 1,000 of the population¹ in the central northern district, to between 1 and 1.5 deaths per 1,000 for the same period in the southern district. Equally striking is the very marked distinction between the area north of Pontrhydfendigaid and that to the south. The north may be justly called an area of high death-rate from tuberculosis, while the south may be looked upon as an area of comparatively low death-rate. The relation of this to the Ystwyth-Wyre line, dividing as we have seen the northern plateau with its predominantly short, dark, long-headed people from the south, with its admixture of fair types, is very interesting. It also justifies our stating, tentatively, that the short, dark, long-headed person living under rural conditions mainly based on shepherding seems to be very addicted to this disease, while the fair types living under rural conditions based on more mixed farming seem to suffer less.

It is only fair to state in passing that the Elerch region, shown in the northern section of Diagram I with fewer deaths than the surrounding districts, has, on close examination of Dr. Fleure's records, a higher percentage of fair types in the native population than the surrounding areas. This area seems to be one into which the fair coastal types have penetrated freely, and the elongated nature of its parishes (*e.g.* Treferig, Diagram III) suggests that it has been a "line of route" through the mountains beyond as well. Before discussing an area entirely different from Eastern Cardiganshire, it is of interest to note that a recent examination made by the writer into a similar problem in the rural districts of South-West Wales illustrates the same general result. The short, dark, long-headed people living in their scattered farms on the northern moorlands of Carmarthenshire and North-Eastern Pembrokeshire were found to suffer heavily from phthisis, while the fair types, living on the good soil of South Pembrokeshire, with agriculture more pronounced than herding, showed a very much lower death-rate from phthisis [5].

Diagrams II and VII illustrate the second area under discussion in this survey: it is the parish of Glynecorrwg—a cul-de-sac at the head of the Avon Valley in Western Glamorgan-shire, and may be considered a typical coal-mining area of the South Wales type. It will be observed from Diagram VII that the area is a great expanse of moorland, or "mountain" as it is called locally, and the 12,000 inhabitants are crowded together into the valley-bottoms, into elongated villages that climb the lower slopes of the steep-sided valleys. The area falls naturally into three units, each with its village, namely, Abergwynfi, Glynecorrwg, and Cwmmer. These valleys receive little sunlight, and their surroundings are made unsightly by the colliery surface-works and tips that blacken the hill-sides.

It is a well-known fact that a very large number of the miners' families on the South Wales coalfield can trace their proximate ancestry to the Carmarthen.

¹ Statistics for the disease have been collected for the decennial periods (1876-86, etc.), and are always stated as per 1,000 of the population *per annum* for the decade in question. Thus "per annum" is always implied wherever "per 1,000 of the population" is used in the text.

Pembroke, Cardiganshire, and Breconshire moorlands. Short, dark, long-headed persons moved down from these areas in great numbers to the South Wales coal-field in the period following the industrial revolution (from 1840 onward in South Wales). This type tends to become the typical collier—the worker at the coal face, and as such naturally forms a very high percentage in any sample in the local population; a sample from the area yielded 75 per cent. of this type. Tall, fair Nordies and other types are nevertheless present in smaller numbers, and are often

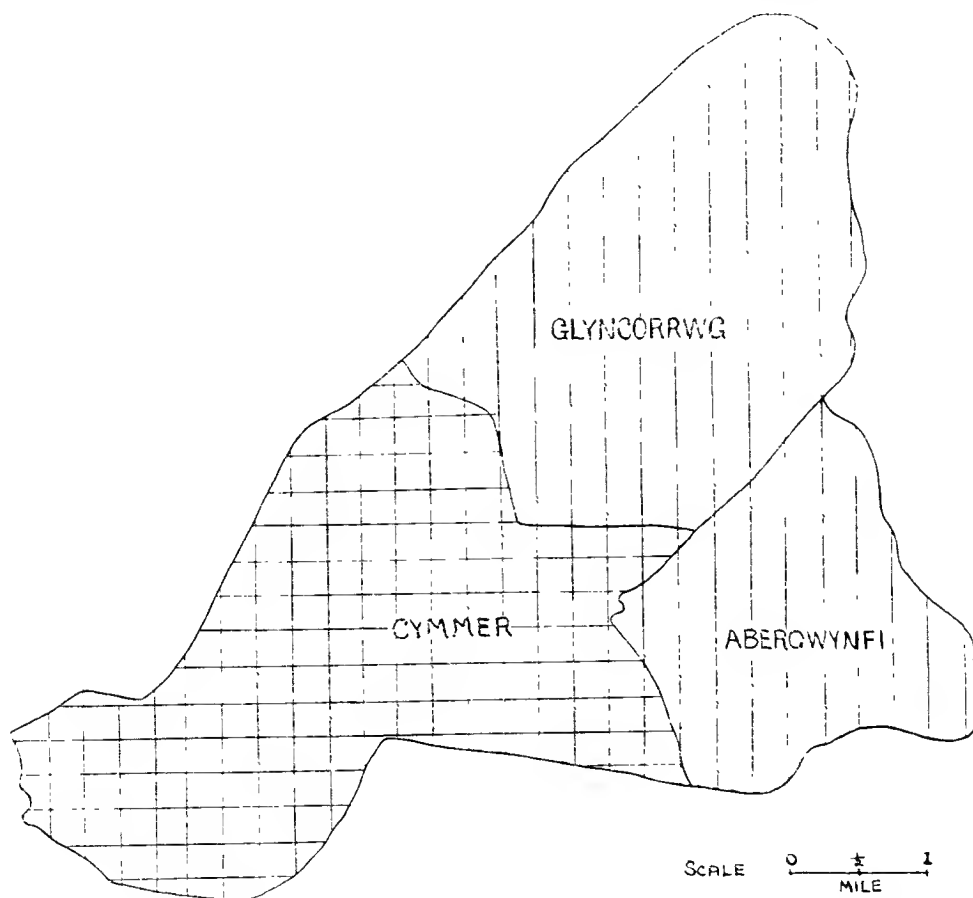


DIAGRAM II.—GLYNCOthRWG PARISH. DISTRIBUTION OF TUBERCULOSIS MORTALITY, 1916-26.
(FOR GRADATION OF SHADING, SEE SCHEME FOR DIAGRAM I.)

in evidence as firemen, overmen, surface-workers, car-drivers, and job-men. In the light of what has been said regarding the nature of the environment and settlement in this industrial valley, and considering the predominance of short, dark, long-headed persons in the population, the evidence supplied by Diagram II as to the distribution of tuberculosis in the area is really remarkable. We find that the death-rate is abnormally low compared with the entire rural area previously considered. The district with the highest death-rate—the Cymmer ward—has

only 1.19 cases per 1,000 of the population—a lower figure than that for the same period in the southern district in Cardiganshire which has provided the most favourable figures as regards tuberculosis. Further, a cursory inspection of Appendix A (where I have given all the information available from personal investigation of the anthropological characteristics of *every* death from tuberculosis that occurred in Abergwynfi during the last twenty-five years) will demonstrate clearly that individuals with fair pigment (including red hair), or with fair types in their ancestry, compose three-fourths of the list—the exact figures are given on p. 390. Thus the problem confronting us in discussing the relation of race and phthisis has become more complicated and may be stated thus: How is it that in the open hill districts of rural Wales the short, dark, long-headed person is so liable to this disease, yet when he goes down to the industrial areas (where he has been shown to form the bulk of the population) and enters apparently unhealthier conditions, he becomes more resistant? On the other hand, the tall, fair types seem to suffer less while farming in the lowland districts and more when they enter the industrial valleys, where they have been shown to compose the greater number of cases. Numerous arguments have been advanced from time to time to explain the fall of the disease in the industrial areas, but none of them appear conclusive. One of the arguments is that the young men go down from the moorlands to the unhealthy conditions of the industrial valleys and there contract phthisis, and, when broken down in health, go home to the moorland areas to die, and thereby decrease the death-rate from phthisis in the industrial areas and increase it on the moorlands. A recent examination of the entire tuberculosis death-rate for Cardiganshire showed that less than 7 per cent. of the cases could be suspected to be of this type [6]. The problem, I think, cannot be adequately explained by these and other similar arguments.

Before proceeding to a more detailed investigation, a few brief notices of the environmental and social conditions in the areas already considered will not be out of place.

The scattered nature of the moorland farms demands much outdoor employment and consequently irregular meals. The quality of the feeding is also bad, being often on the bread-and-butter and tea basis, supplemented by bacon soup: fresh meat is seldom eaten. The Report of the Royal Commission on Land in Wales and Monmouthshire, 1897, bears striking evidence to this. One witness says of these moorland farmers: " Their breakfast consists of tea, bread and butter, or cheese, and in many places bacon. At dinner they have potatoes, and meat (mostly bacon) but sometimes butcher's meat, then comes in the afternoon tea and bread and butter. For supper they have milk or broth and bread and cheese, but a cup of tea for those who are fond of having it again " [7]. It should be added that the diet seldom reaches this standard in practice. Much of the best produce is taken to the markets and exchanged for cheap groceries. Stewed tea is given to quite

young children, while dental and gastric troubles in youth are very common features. Thus, in often ill-designed ill-ventilated and insufficiently roomy farmsteads the chance of bodily resistance sufficing to neutralize infective contact is very slight indeed, and the concentration of infection likely to be high where cases of tuberculosis are present.

In the industrial areas the battle for existence handed down from the early days, and the "lack of permanency" that characterizes mining communities everywhere, has perpetuated an improvident spirit in South Wales. When money comes to hand it is quickly spent. Feeding is much better than on the moorlands, and we find most of the milk and fresh meat of the country sent down to these populous areas for consumption. Most meals are served hot, and fresh meat—chiefly beef-steak, plays an important part in the diet, while even the fish and chip-potato diet is an improvement on the monotony of the modern moorland fare. These conditions have helped the short, dark, long-headed person to become better able to deal with infection when he meets it; in other words, the balance between health and disease is apt to turn in his favour, and so this type seems well able to adapt itself to industrial conditions.

The fair types under rural conditions till a better soil, and are generally supplied with sufficient produce for their own use and for market purposes. Many areas with a distinctly fair population like South Pembrokeshire have long had a reputation for good living.¹ The Nordic type seems made for the open air with plenty of sunshine and movement and good agricultural land: there his body seems at its best. When he enters the narrow, sunless, smoky, shut-in industrial valleys, in spite of good feeding, he seems to miss that which keeps his body at high pitch, and so he fails to adapt himself successfully to the industrial conditions of South Wales. The Nordic vitality is lowered in the industrial areas, and the balance between health and disease turns against him, and he tends to suffer from the acute form of phthisis under such conditions.

The foregoing remarks have given us the opportunity of considering the relation of racial types, environmental factors and phthisis under rural and industrial conditions, as well as of observing some of the effects which seem to be attendant upon changes from one type of life to another. This latter problem seems to be all-important, and the areas already examined are especially suited for a more detailed investigation of this matter.

The northern section of the Cardiganshire area was formerly an area of great lead-mining activity. It has been famous for its lead mines for many centuries, possibly from prehistoric times, but the mining reached its last maximum about

¹ "... for of custome at certeine seasons and labors they will have fyve meales a daie, and if you will bestowe the sixt on them they will accept it veye kindly, and if they be but a little intreated they will bestowe laboure on the seaventhe meal"—Geo. Owen, *Description of Pembrokeshire*, 1603, E. I. Hy. Owen, p. 43.

1870, and since that time, owing to difficulties of transport, obsolete machinery, and foreign competition, has passed entirely away. With the passing away of industry the area has turned to the pastoral and agricultural resources of the bleak moorlands.

Conversely, fifty years ago the parish of Glyncoŵwg had but 734 inhabitants, mostly sheep-farmers and their families, scattered over the moorlands with a few gathered together in the old hamlet of Glyncoŵwg. Abergwynt and Cymmer did not exist, nor did the many coal-pits and levels that to-day form the nuclei of the villages. In half a century an immigrant population drawn mostly, but not always directly, from the Welsh and neighbouring English moorlands, has increased the inhabitants of this one-time rural and pastoral area to almost 12,000.

The next section of this paper deals with a detailed examination of fifty years' record of the disease in both areas, thereby giving an opportunity of studying over the same period of years the effect of change from mining to one or other form of agricultural life in the case of North-Eastern Cardiganshire and the reverse process in Glyncoŵwg. In doing this I have realized fully that the change from mining to rural conditions is by no means a simple reversal of the change from rural to mining activities.

The Cardiganshire Lead Mining Area.

Introductory.—The metalliferous area forms a roughly rectangular belt about 20 miles long and 4 miles broad, extending in a south-south-easterly direction from near the mouth of the Dovey to near Pontrhydfendigaid. A few small mines lie outside this area, but the majority of the important ones lie within it. The veins range fairly regularly in a west-south-westerly direction [8]. Most of the important ones are marked on Diagram III. The mines have yielded, among other metals, lead, copper, silver, and zinc, but lead has always been the most important mineral worked.

As has been already noted, the area has been known for its mineral wealth from early days. There are traditions of mines being worked here by the Romans, and the relation of the hilltop camps of Romano-British age to the various lodes is at least suggestive of the fact that the camps are so placed as a defence for a primitive community which knew the value of the ore [9]. In the post-Roman centuries there seems little doubt that the area was frequently raided by Irish and others from over the sea for its mineral wealth. During the Middle Ages we hear less of the mines, but an authentic account of mining operations refers to the reign of Henry VII, while we are told that Custumar Smith had silver from Cardiganshire in the reign of Queen Elizabeth. In 1568 a corporation styled the Society of the Mines Royal was formed which worked several of the Cardiganshire mines (Cwm Symlog, Grogman, Cwm Yr-wyth, etc.) for some years. Later, rights were farmed out to enterprising individuals, among the most famous being Sir Hugh Middleton. He

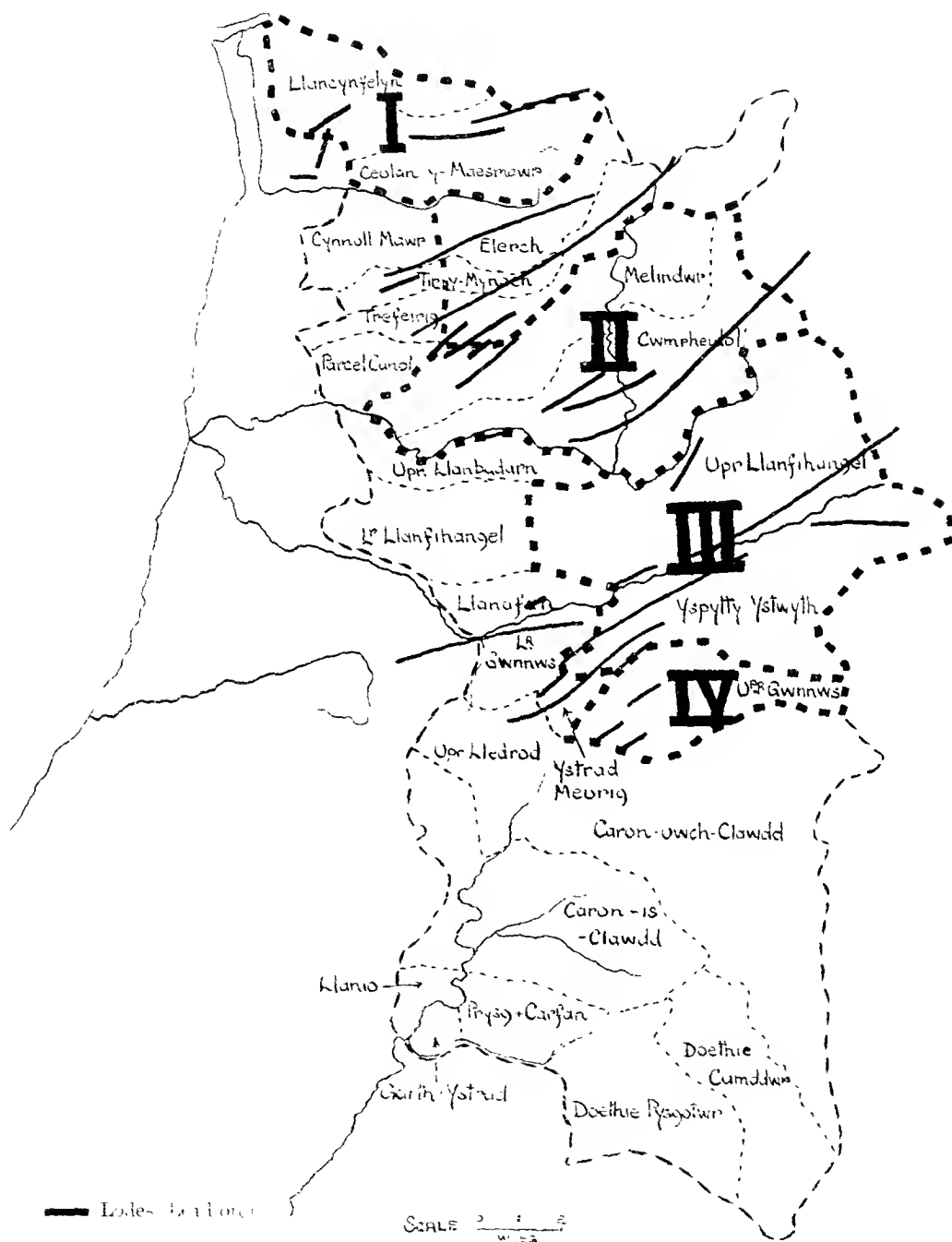


DIAGRAM III.—EAST CARMARTHEN : PARISHES AND LEAD-MINING AREAS.

made huge fortunes on the working of the mines but expended them all in improving London's water supply. Following Sir Hugh Middleton came Thomas Bashall, who mentions in his letters (1649) great quantities of silver and lead in the mountains of "Broofglyd, Taly-bout, Goginan, Cwn-erven, and Daren" [10]. He also made great profits, and established a silver mint at Aberystwyth. The mines are next heard of in the hands of Sir Carberry Pryse, and after his day they go to Sir Humphrey Mackworth. In the period 1698-1709 Waller, the agent for Sir Carberry Pryse, wrote many pamphlets giving accounts of the Cardiganshire mines belonging to the Governor and Company of Mine Adventurers of England. In 1709-20 there was a quarrel within the Company, and in 1744 only a few of the Company's mines were working. It is important to remember that many private adventurers besides the Company worked mines in the county. Workings were carried on intermittently for the next hundred years, but towards 1845 there was a gradual improvement that continued until the last maximum period was reached about 1870, when there were some 30 important mines and levels working, besides many smaller ones. The last maximum period was a very clearly marked feature, and was accompanied by a rapid increase in the population and followed by an equally rapid fall. For example, the population of the parish of Cwmrheidol, in the centre of mining activity, was 357 in 1801, in 1871 it was 1,468, and in 1921 it had fallen to 591 [11]. There was doubtless at this time much immigration from the surrounding parishes, and a very important feature was the immigration of Cornish miners who followed the Cornish mining captains into the area. Cornish names such as Treverhan, Grey, Saycell, Felix, Dullyke, Tiblott, etc., may still be traced in local families and records. It is difficult to estimate whether the Cornish immigration was stronger in some parts of the mining field than in others, but the Rheidol and Y-twyth valleys seem to have had a large number of these immigrants.

The conditions under which the miners worked were very hard. The tilling of the veins was most often hard and siliceous [12], and methods of ventilating the mines in those days were very primitive, this factor undoubtedly accounts for the large number of deaths from "fibroid phthisis" discussed later (p. 382). The miners were paid by "output," that is, they were paid according to the amount of ore they could get from a given portion of the lode. Should the lode prove almost fruitless, it would seriously deplete the miner's wages. The housing accommodation was terrible—the usual thing was for a party of miners, who came from a distance, to stay during the week at one of the farmhouses (most of the Cardiganshire miners had a meadow or two on which they kept a cow) [13], and return home over the week-end. They often paid for their keep by giving a hand at the farm in their own non-working hours. They would all sleep together in the loft, a long, single upper-room with no windows or ventilation of any kind and the bare roof of the house, seldom waterproof, their only protection from the weather. Otherwise the miner and his family would live in what were called, locally, the "barracks,"

the conditions of which are best gleaned from the name itself. Feeding also was very bad. At this time (1840-70) Cardiganshire was to a great extent shut off from the outside world and transport before the railways came was very primitive, while the population of the mining field was larger than the local supplies could suffice. We are told that the miners ate poor barley bread, made from barley that came originally from America in bales. This was often fermented, and when supplies were for some reason or other cut off, actual starvation prevailed. Alcoholism also was very prevalent [14], and it is no wonder that, under such conditions of poor feeding, housing, working, and wages, it was a local tradition that those who took to mining early in life died before they were fifty-five years of age.

With the industrialization of South Wales and the importation of Spanish ores, and the great difficulties of transport from the Cardiganshire mines to the centres of manufacture, coupled again with the already obsolete machinery and methods of mining, the Cardiganshire lead mines began to lose their importance from 1870 onwards. The output rapidly decreased, and the miners flocked in large numbers to the rapidly growing centres on the South Wales coalfield. With occasional rises in the price of lead ore there were temporary spurts of interest in the Cardiganshire lead mines, but their prosperity was bound to decline. By 1900 only 9 important sites were working, and by 1919 all workings of any importance had ceased [15]. Meanwhile depopulation had gone on apace. The population of the mining field had fallen from 8,246 in 1871 to 4,202 in 1921. The surviving population strives as best it can to live upon the scanty pastoral and agricultural resources of the moorlands. It is interesting to remember that although the rivers are polluted, and grasses and crops near the disused surface workings of the mines show signs of lead-poisoning, yet experts are of the opinion that the lead-poisoning of itself does not impoverish the area sufficiently to depress its standard of production, or to lessen its ability to support sheep and cattle below what would be the case if the mines did not exist [16]. This means that the moorland area of North Cardiganshire at the present time can be compared from the point of view of its scanty resources and scattered population with similar areas elsewhere. As such, it offers almost ideal conditions for studying the changes in the incidence of tuberculosis in a population that has changed from mining to a reliance on one or other form of agriculture.

One of the greatest difficulties in studying the distribution of statistical data is that of basing the study on "natural regions": where possible, statistics should be collected for regions that are well-marked human and geographical units and not for the arbitrary political divisions under which they are generally collected and demonstrated. It is with this object in view that four such "natural regions" have been marked out among the parishes that compose the North Cardiganshire lead-mining field. These areas are shown on Diagram IV.

The Talybont area (I) is the northern edge of the mining field, and includes the civil parishes of Llancynfelyn and Ceulan y Maesmawr. It has a fair amount of lowland area, and not such a large extent of moorland as the regions next further south. The neighbourhood of Talybont village is one of the old mining sites, reference being made to its mines as early as 1640. But, on the whole, mining here was

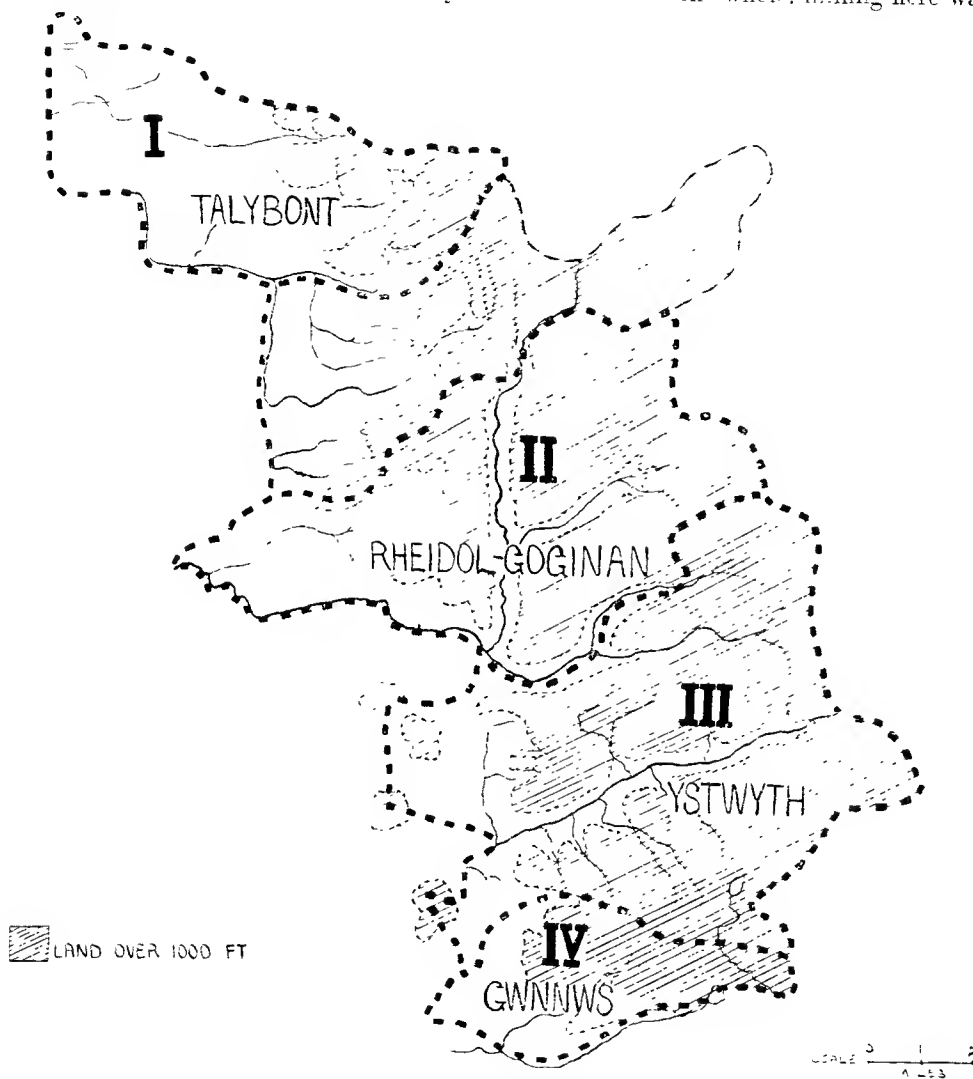


DIAGRAM IV.—NORTH CARDIGANSHIRE: LEAD-MINING AREA, NATURAL REGIONS.

not as extensive as, and tended to decay earlier than, in the larger regions next to the south. The district has turned to a reliance on sheep-farming on a large scale, coupled with a fair amount of arable land and stock-raising [17] (see Diagram V). The village of Talybont is a well-known weaving centre to which most of the wool from the surrounding parts is brought. A survey of the physical anthropology indicates that the short, dark, long-headed person

is very pronounced in the local population, forming over 65 per cent. of the samples.

The area comparable to Talybont on the southern edge of the mining field is Gwnnws (IV). Like Talybont, Gwnnws is a peripheral district with less mining than the interior regions, and it also has much less moorland than the main

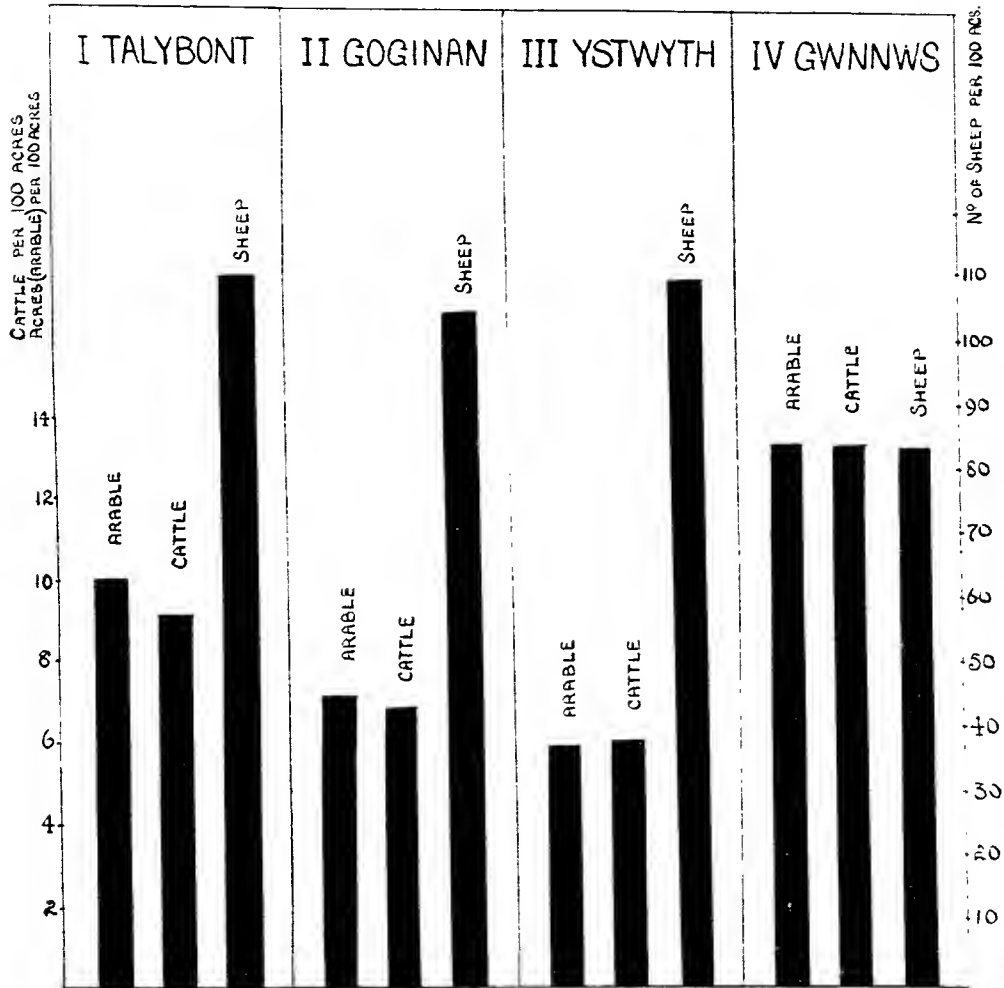


DIAGRAM V.—NORTH CARDIGANSHIRE: STOCK, CROP, AND SHEEP-FARMING, AGRICULTURAL CENSUS, 1918.

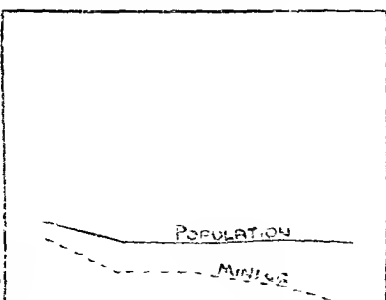
mining area, but it differs markedly from Talybont, in that sheep-farming is relatively less prevalent, being equal to arable and cattle-breeding (Diagram V), and in that a tall, thick-set, fair-haired, medium-headed, blue-eyed type is a large element in the local population—we have now crossed the Ystwyth-Wyre line mentioned earlier in this paper. Between these districts lies the area of former maximum mining activity, which we will now consider.

I ITALYBONT

II RH.-GOGINAN

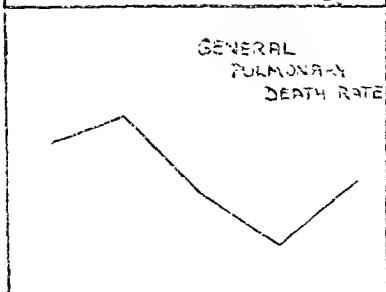
POPULATION
TOTAL
WORKING-YEARS
OF MINES & QUARRIES

GRAPH 1
30 3000
20 2000
10 1000
5 500



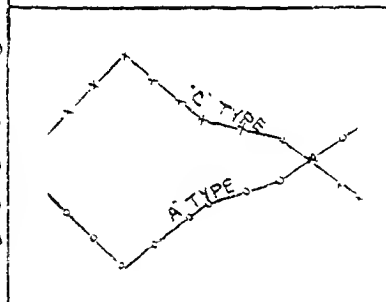
DEATHS
PER 1000
PER ANN

GRAPH 2
4
3
2
1



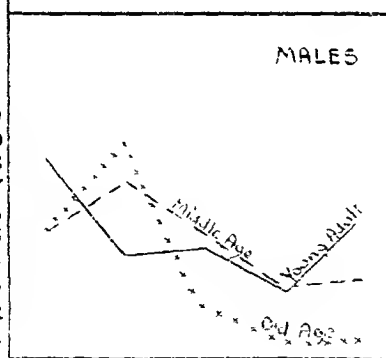
PER CENT

GRAPH 3
80
70
60
50
40
30
20



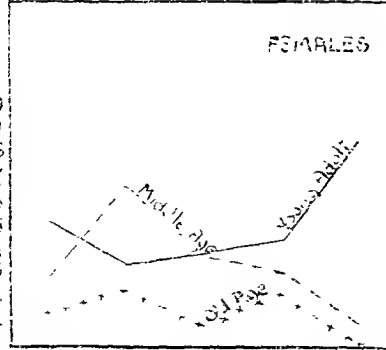
PER 1000
OF THE
POPULATION

GRAPH 4
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1

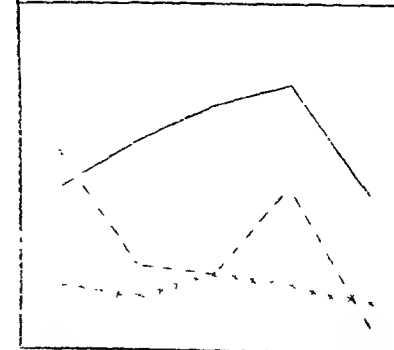
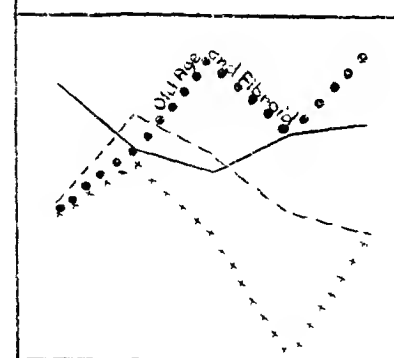
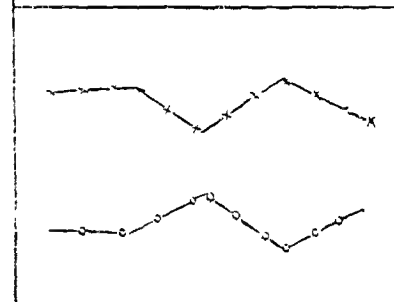
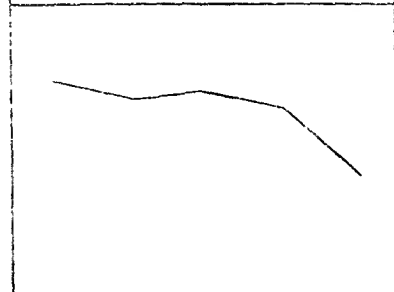
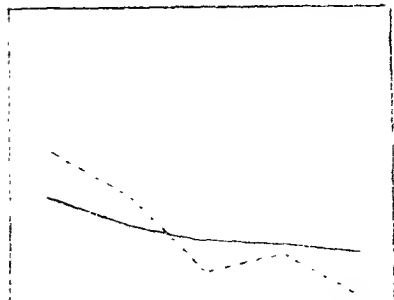


PER 1000
OF THE
POPULATION

GRAPH 5
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1



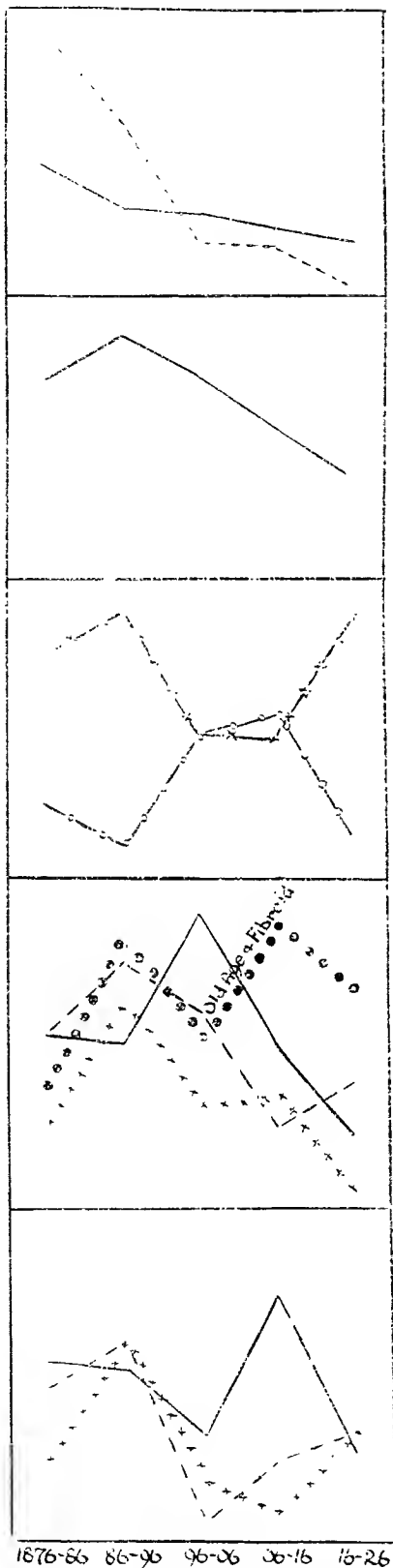
YEARS 1870-80 80-90 90-00 00-10 10-26



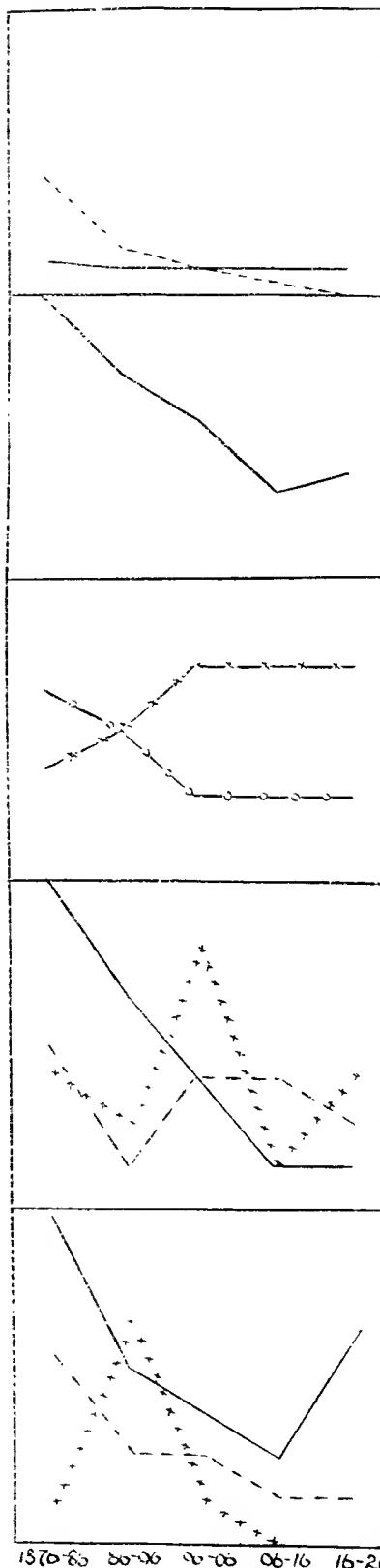
YEARS 1870-86 86-96 96-06 06-16 16-26

DIAGRAM VI.—NORTH CARBONSHIRE LEAD-MINING AREA GRAPHS.

III YSTWYTH



IV GWNNWS



Total
work-
ing-
years
of mines.

Popu-
lation.

4000
3000
2000
1000
500

Graph 1

Deaths
per 1000
per annum.

4
3
2
1

Graph 2

Per cent.

80
70
60
50
40
30
20

Graph 3

Per 1000
of the
population.

10
9
8
7
6
5
4
3
2
1

Graph 4

Per 1000
of the
population.

10
9
8
7
6
5
4
3
2
1

Graph 5

DIAGRAM VI (cont'd.)—NORTH CARBONSHIRE LEAD-MINING AREA GRAPHS.

The region is the bleak moorland area cut by deep slot-like valleys, opening out a little to the westward. This area of maximum mining activity falls naturally into two divisions—the Rheidol-Goginan area (being the valley of the Upper Rheidol and its tributaries) (II), and the valley of the Upper Ystwyth and its tributaries (III).

It is a point of interest that while the Rheidol-Goginan area shows unmistakable evidence of the short, dark, long-headed type being predominant in local samples (together with some of the extremely long-headed survivals of Aurignacian man), the Ystwyth area yields a marked Nordic strain, though the dark, long-headed type is on the whole predominant here as well. The physical features of these two areas are such as to limit agriculture, except in the extreme west, and so a poor grade of shepherding is the lot of almost the entire population.

On Diagram VI, I have shown, by means of a series of graphs, certain features appertaining to the incidence of pulmonary tuberculosis in these four regions for the last fifty years.

The first two graphs in the series (Graph 1) indicate, on the one hand, the decline of mining activities (based on the returns per annum of the mines within the respective areas), and, on the other, the fall in the population over the same period. The second series of graphs (Graph 2) indicate the death-rate per 1,000 of the population from pulmonary tuberculosis. I may state here that through the Registrar-General's kindness I have been granted permission to examine all the registers of death within the area, and these records have been used throughout.

All persons dying of the disease who are known to have resided away from the area for considerable periods are excluded, while all cases mentioned as "pulmonary" in the diagnosis are included, even if other complications of a surgical nature, or meningitis, are given as well. In this I am following the method adopted by the Welsh National Memorial Association.

The remaining graphs are the result of attempts to indicate variations in the nature of the disease based on different classifications. Graph 3 represents an attempt to apply Colonel S. Lyle Cummins' classification of the variations in the clinical type of pulmonary tuberculosis as outlined by him in *Tubercle*, May, 1926 [18], while Graphs 4 and 5 represent the classification described by the late Dr. John Brownlee, based on age at death, and showing the "young-adult," "middle-age," and "old-age" types in males and females.

In the first classification (Graph 3) we have two marked clinical types—I quote Colonel Cummins:—

"(A) *Acute Initial*.—A case is to be regarded as 'acute and initial' when the progress of the illness has been continuous from the start, without healthy intervals of any considerable duration. If the disease has continued to progress for more than two years, it ceases to be 'acute and initial' and passes into the 'chronic or recrudescant' group for purposes of classification.

"(C) *Chronic or Recrudescent*.—A case is regarded as 'chronic or recrudescent' when there have been previous signs of tuberculosis infection, such as hæmoptysis, pleurisy, bone, joint or gland disease, abdominal or pulmonary infection, *but where these have been separated from the present illness by periods of relatively good health*. All cases of over two years' duration are to be classified under this heading. It should be noted that *acute exacerbations* in the course of chronic tuberculosis fall into Group C."

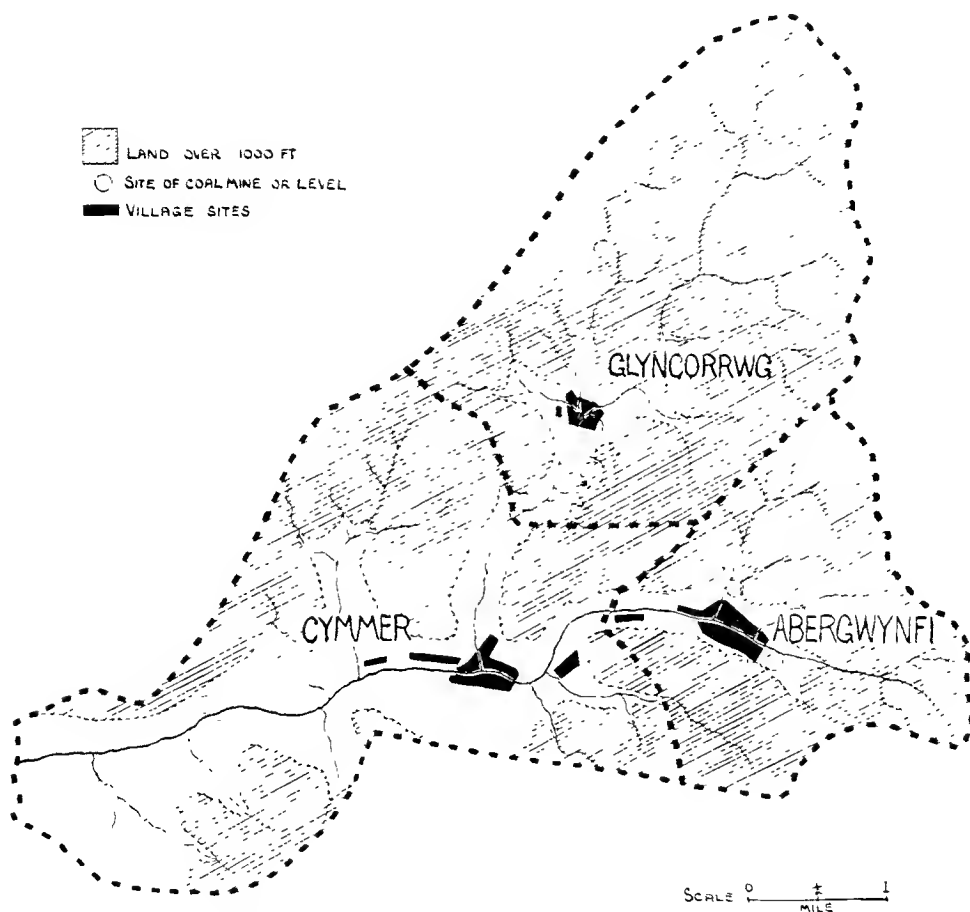


DIAGRAM VII.—PARISH OF GLYNOREWG (CIVIL WARDS).

I have used this classification, as far as possible, for the post-1916 cases from the Welsh National Memorial's Records.

When analysing the records for the years before 1916, I was guided by the sex, age at death, nature and duration of the illness in individual cases, together with advice from the Tuberculosis Officer for the area—Dr. D. Charles Lloyd, and from the local practitioners, one of whom, Dr. John Morgan, Pontrhydygroes, has worked almost the entire southern section of the mining field since 1877.

ENTIRE AREA

ABERGWYNFI

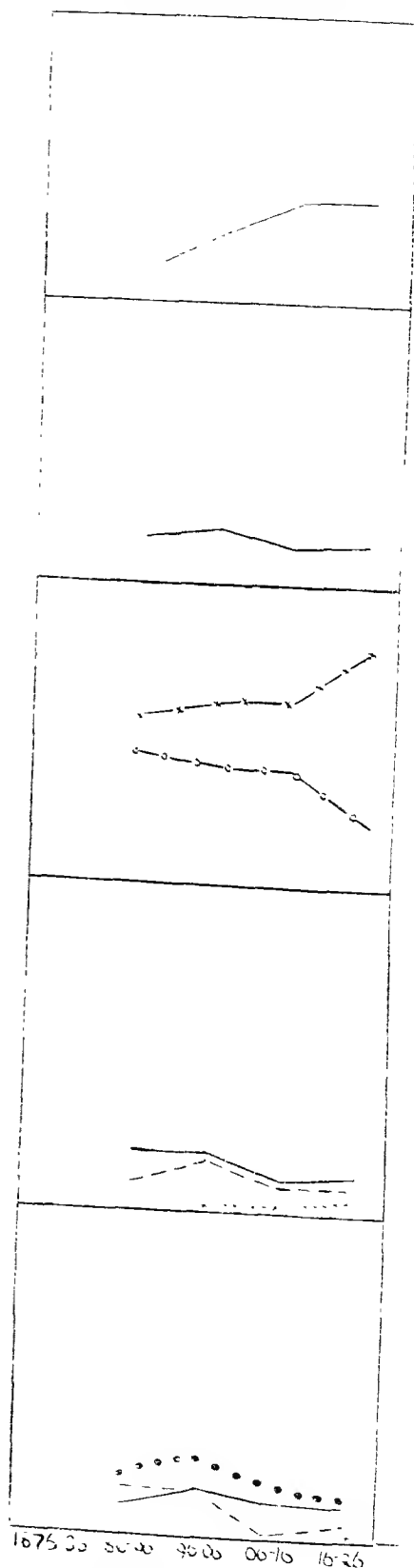
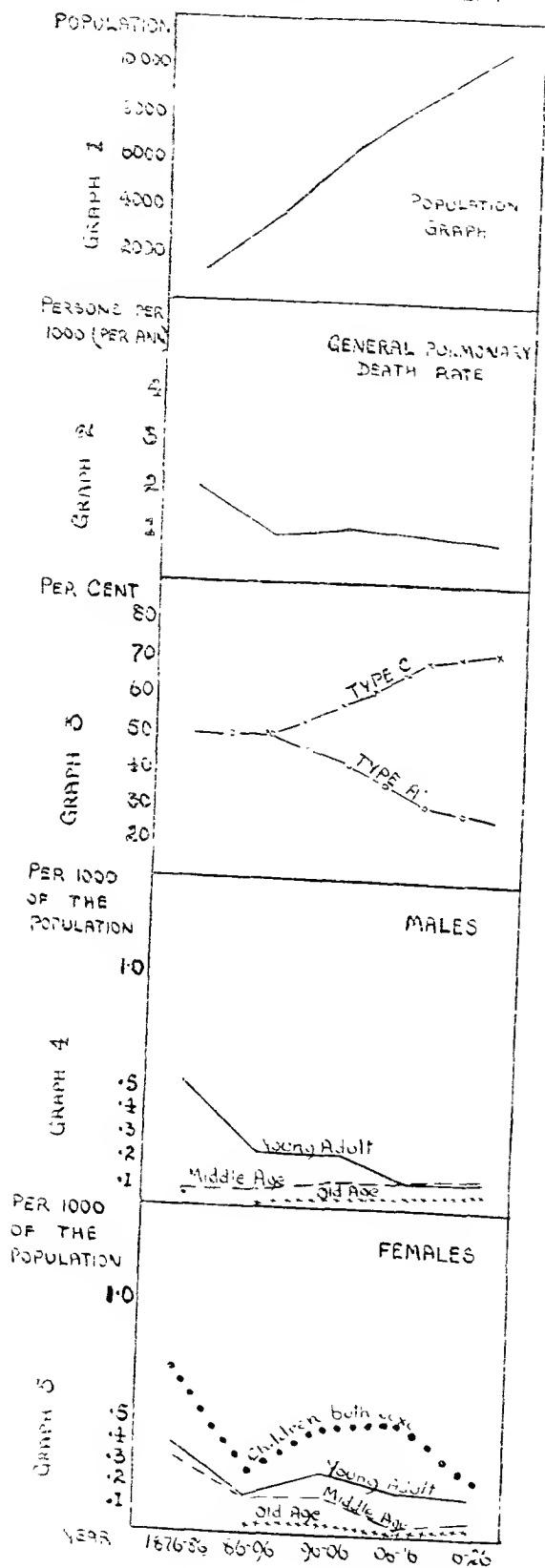
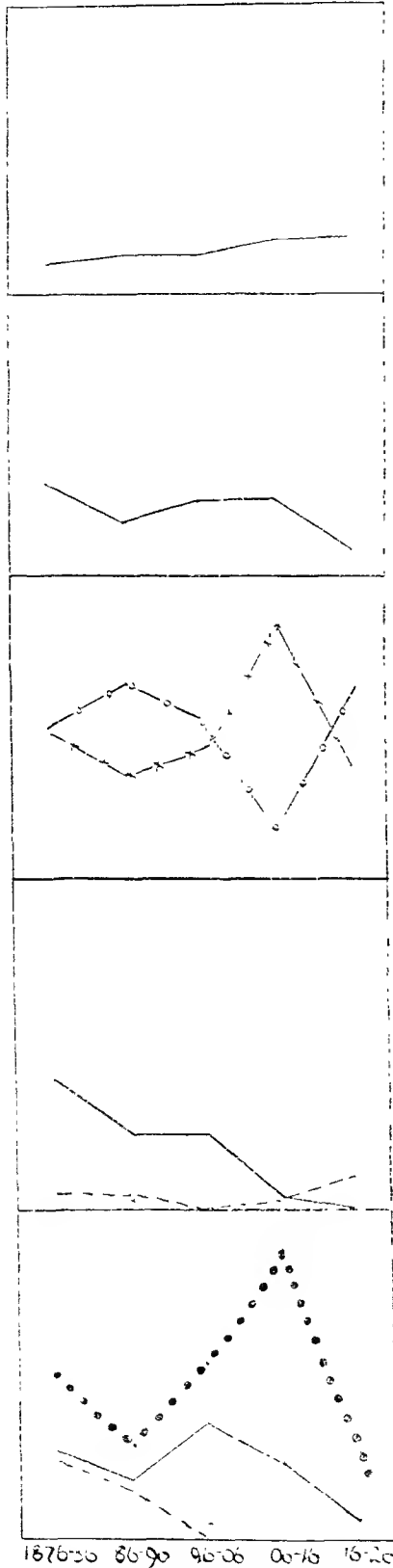


DIAGRAM VIII.—GLYNCORRWG AREA GRAPHS.

GLYNCORRWG



CYMMER

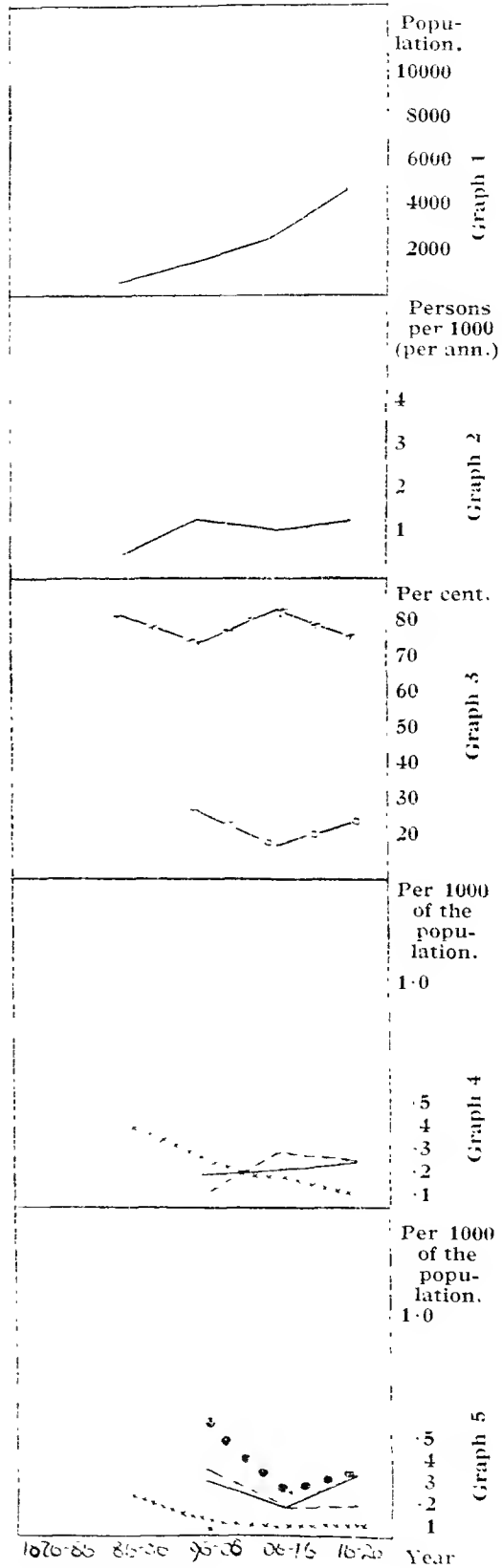


DIAGRAM VIII (cont'd).—GLYNCORRWG AREA GRAPHS.

Without personal observation of the individual cases it is, of course, impossible to make use of the subdivisions suggested by Colonel Cummins; and the graphs (Diagrams VI and VIII, Graph 3) are naturally of a tentative nature, but the results are most interesting, especially in helping us to understand the fluctuations in the tuberculosis death-rate curves as shown above.

The graphs on Diagrams VI and VIII (Graphs 4 and 5) are based on Dr. Brownlee's classification as given in his *Epidemiology of Phthisis in Great Britain and Ireland*, Parts I-III, published by the Medical Research Council in 1920 [19]. I feel that this classification is the best suited for an analysis of mortality tables, and it has been used for that reason. Dr. Brownlee gives reasons for distinguishing between "middle-age" phthisis (that is, phthisis causing death between the ages of 35 and 55) and "young-adult" phthisis, and for identifying also an "old-age" type probably closely related to the "young-adult" type. Dr. Brownlee was inclined to believe that these age-types correspond with separate types of infecting bacillus; but, although the works of Tulloch and others have now shown this view to be erroneous, Brownlee's age-types are, nevertheless, of real significance in studying the disease.

Before proceeding to an analysis of the various areas a slight digression may be of interest. In examining the death registers, many deaths are given under "miners' phthisis" or "fibroid phthisis." It is interesting to note that all these deaths are of males over 50 or, in many cases, over 55. They are invariably lead-miners by occupation. It can be shown that deaths from fibroid phthisis take place at more advanced ages (during recent years) in the Ystwyth and Gwnws region among a fair population than they do in the Rhedol-Goginan region which has mainly dark, long-headed people. The number of fibroid deaths has tended to increase rather than decrease during the last twenty-five years: this is probably due to the fact that the old men, who now compose the fibroid death-rate, were young men working in the mines when mining activity was at its height.

The fibroid deaths are an important element in the old-age tuberculous death-rate in these areas, a fact which forms an interesting commentary on Brownlee's "old-age" group (see Diagram VI, Regions II and III, Graph 4, which show "old-age" deaths including and excluding fibroid cases). It should be borne in mind that fibroid changes in the lungs, while frequently associated with working in hard rock, are also found in tuberculous patients who have survived for many years with chronic phthisis.

A brief analysis will next be made of the information on Diagram VI. In the Tal-y-bont region (F) an early relatively high density of population is followed by a rather sharp fall as mining passed away. The population has remained stable, with a slight tendency to increase since this period. There was a slightly smaller proportion of tuberculosis deaths here in 1876-86 than in either the Rhedol-Goginan or Ystwyth areas. The Tal-y-bont area in 1876 would have better communication

with the coast, and be better able to raise local food crops and cattle than either of the larger mining areas. There was a marked fall in the Talybont death-rate when mining decayed, and improved communication by road and railway brought better supplies to this district, although it remained until 1910 in a semi-industrial state. But with a greater dependence on agriculture, especially sheep-farming and weaving, a marked *rise* took place in the pulmonary death-rate. This may, however, be in part a secondary result of railway development, which brought invalid visitors to the coast resorts near-by: and the opportunities for contact and infection thus given to young adult females, who come in large numbers from the rural areas to the coast resorts in the summer season as domestic servants. On their return home they become foci of infection.

It is interesting to note that, since 1916, type "A" cases have been in excess of type "C" cases, though our graph shows that these "A" cases have in fact been on the increase since industry began to decline seriously, but have only recently actually exceeded those of "C." This feature is also shown in the lower graphs (Nos. 4 and 5). There is a marked increase of "young-adult" deaths, both male and female, with a corresponding decrease of "old-age" and "middle-age" deaths. It is a point of considerable interest here that the "young-adult" females are the first to show a rising death-rate from the acute type of the disease, and seem to remain more prominent than the males among the "young-adult" deaths. It may be mentioned in passing that the increased tuberculosis death-rate in this area bears no relation to deaths among actual employees in the woollen mills—the percentage of woollen workers in the death lists is quite insignificant, while the bulk of the cases are in the small farms. If present conditions continue in the Talybont region, there will be a tendency in future for the character of the tuberculosis death-rate to revert to that of a typical pastoral area.

Turning to the southern edge of the mining field, to the Gwynws district, we notice (Diagram VI, Region IV, Graph 1) the same early tendency to a relatively high density of population—the same subsequent slight fall and later stability. During the industrial period there was here a remarkably high pulmonary death-rate—as many as 6 persons per 1,000 of the population dying from the disease during the period 1876–86. This is the story of the fair types under industrial conditions. As industrial conditions passed away, and as the area came to rely more and more on arable land and stock-raising (see Diagram V), there was a very marked and steep fall in the death-rate. The fair types under farming conditions tend to show less of the "A" type. While this recalls the story of Central Cardiganshire and South Pembrokeshire over again, it is complicated by the fact that many of the industrialists remained and became farmers. During the last decade there has been a slight rise in the tuberculosis death-rate, but this is almost entirely composed of "C" cases at advanced ages—and it may be explained through a "remanent" of the industrial period "living on" and producing this effect in an

area with a present low mortality. In industrial days, "A" cases were in excess of "C" cases, but after 1900 a complete inversion took place. This point is well brought out on the lower set of graphs (Nos. 4 and 5) by the remarkably rapid fall in the "young-adult" male death-rate from 1.5 cases per 1,000 of the population (1876-86) to .19 cases in 1916-26. It will be noticed that the fall in the "young-adult" male death-rate is more rapid and has proceeded further than that of the "young-adult" female death-rate, which has latterly tended to rise. The "old-age" male death-rate is on the increase, while the "old-age" female death-rate seems to have been falling since 1886. It will be noticed that the history of the disease in the Gwnws area presents features different from that in the Talybont district. In future years one would, perhaps, expect the Gwnws district to have a very low, slightly fluctuating tuberculosis death-rate with "C" cases predominating; that is, it would tend to approximate to the conditions in Central Cardiganshire (see Diagram I), and South Pembrokeshire, and other areas with fair types based on stock and crop-farming.

Now let us turn to the main mining areas as illustrated by Regions II and III, Diagram VI. The population decreased rapidly from 1871 to 1881, and has continued to fall, though more slowly. This contrasts with the changes in the areas previously considered.

In the northern section, the Rheidol-Goginan area, we note a fairly high tuberculosis death-rate in 1876. This is associated with the poor social conditions, especially as regards food supply (previously described in the general introduction to the area) in these days—a feature that has always to be remembered in comparing the area with either Talybont or industrial South Wales. With a poor grade of shepherding following upon the collapse of mining, the death-rate still continues high, though there is a tendency for "A" cases to be on the increase.

In the southern section of the main mining region (Ystwyth area) we remember that we are dealing with an area which had a more mixed population during the mining period than any region previously considered. There is a tendency for a rise to occur in the tuberculosis death-rate following a marked drop in the population, but when the fall in the population becomes more gradual the fall in the pulmonary death-rate grows more steady. The nature of this approximates more to that of the Gwnws area than to that of either the Rheidol-Goginan or Talybont areas. It is to be noticed from Graph 3 that, from 1900 onwards, the "C" type comes definitely to the fore in the death-rate. These features are well shown on the Brownlee classification. There is a marked fall in the "young-adult" male and female death-rates, and a corresponding rise in the "old" and "middle-age" types, especially female. It is interesting to speculate that the male of the fair types may perhaps be more susceptible to social changes than the female, while the reverse seems to be true of the short, dark, long headed type. The population of the Ystwyth Valley, as in the Rheidol-Goginan area, is moving coastwards, but it is

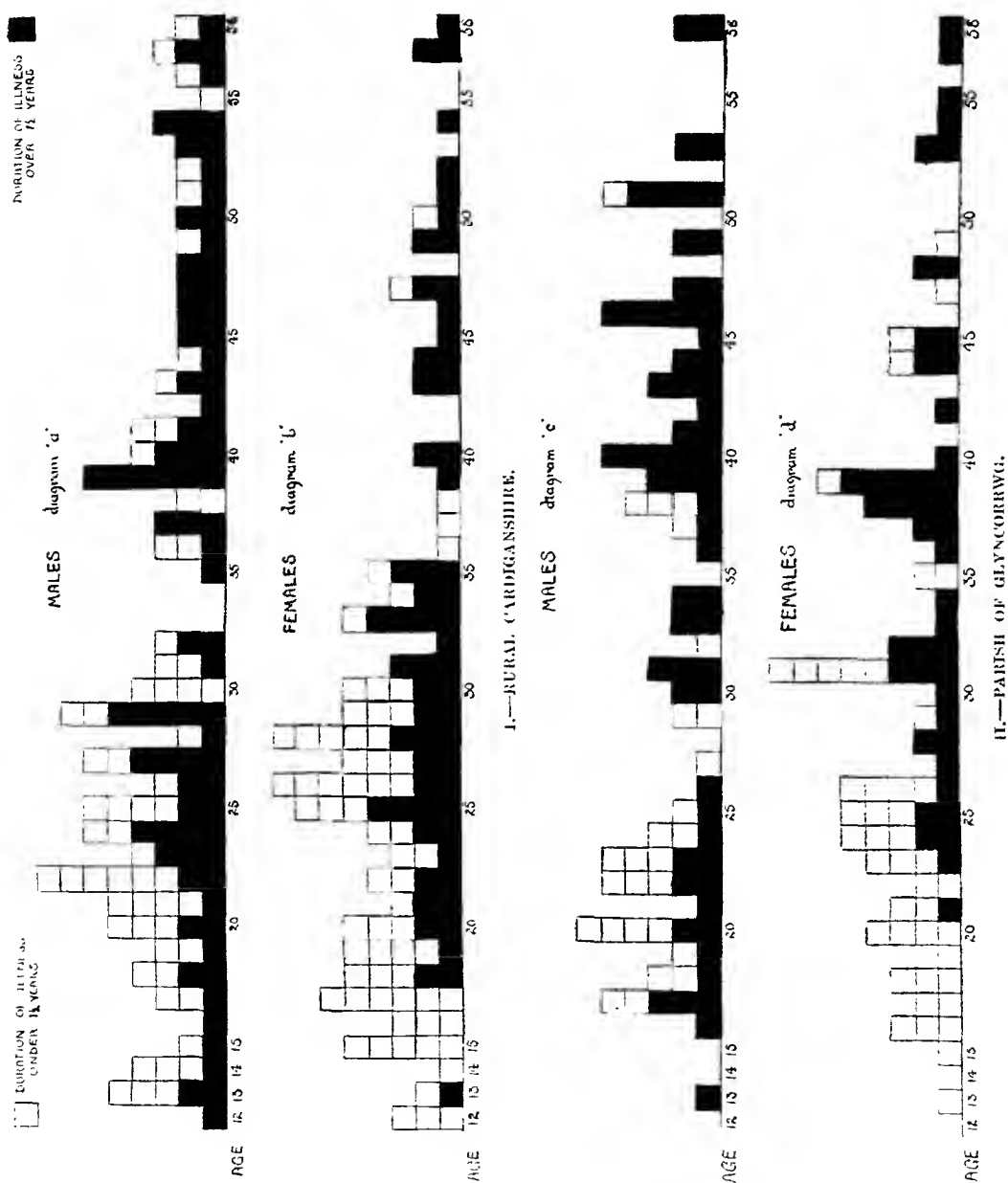


DIAGRAM IX.—DURATION OF ILLNESS IN RELATION TO AGE AT DEATH
(SEE PAGE 397.)

worth suggesting that conditions as regards the disease will tend to follow those of the Gwnnws area rather than those of Talybont.

The general conclusions to be drawn from this detailed survey of the Cardigan-shire lead-mining area are similar to those suggested by the preliminary survey of rural and industrial conditions.

The Parish of Glynecorrwg.

Introductory.—In order to understand the tremendous changes that have taken place in this area during the last fifty years, it is necessary to remember that Glynecorrwg is but a very small section of a great industrial area, and, therefore, no complete study of this region is possible without reference to the main features in the industrialization of the whole area.

The beginnings of industry in South Wales were connected with the iron deposits of the northern outcrop of the coal measures. Iron smelting developed very rapidly from 1750 to 1815, and with the linking up of the coast towns with the iron-field by canals, and the use of coal for the blast furnaces, the industry grew enormously, only to be increased as the demand for iron to build railways and steamships became more and more important. But from 1841, with the development of the railways, from being a by-product of iron-smelting, coal, as a means of direct profit, became the object of speculating adventurers. At first coal for export was worked only on the north and south of the outcrop, but with the development of better machinery and safer appliances for deep pits, the deeper and richer veins of Central Glamorgan were worked [20]. This area includes the Rhondda Valley and the Parish of Glynecorrwg. From 1850 onwards South Wales steam coal had secured recognition, and with the demand for steamships, navies, etc., had extended to a world-wide market.

The last phase in the industrial development of South Wales was the rise of the metallurgical industries near the coast, but this phase does not affect the section of the coalfield in question. The particular development of Glynecorrwg is clearly connected with the second, or coal-exporting, phase of the industrial revolution in South Wales, and its development, as we have shown, is intimately linked up with that of the railway systems.

In October, 1853, permission was granted by Act of Parliament to extend the South Wales mineral railway to Glynecorrwg village. This was followed by the opening of many levels near-by, and an influx of population from the Pontypridd area following a well-known mining captain named Plummer. The Great Western Railway extended its line from Maesteg to Abergwynfi in 1874. This was followed by the sinking of the Western pit at Abergwynfi, while Joseph's level and the Avon level (G.W.R.) were also working. This resulted in the next big influx into the

area, which was drawn mainly from the rural districts of Pembrokeshire, Cardiganshire, and Carmarthenshire, and especially from the neighbourhood of Llanelly. Dr. Trueman has pointed out how the earliest growths in South Wales towns were made up mostly of people drawn from the neighbouring parishes, but with the development of the railways people came from greater distances [21]. The next great development at Glyncoirwg was the extension of the Rhondda and Swansea Bay Railway to Cymmer in 1888-9, and its extension by tunnel to Treherbert in 1889-90, thereby linking the area with the rapidly developing Rhondda Valley beyond. A further pit was sunk at Blaengwynfi in 1894, which brought another influx of people both from the neighbouring valleys and beyond. The next ten years saw the opening of the Argoed and Old Cynon levels, the North and South pits Glyncoirwg, the Ynys Coirwg and Duffryn pits, together with the rapid development of Cymmer and Abergwynfi as mining villages (Diagram VII).

The object of this historical survey is to indicate both the nature of the area under consideration and its relation to the coalfield as a whole, and also to understand the nature of the immigration. We may divide the new population into three classes based on their origin:—Firstly, we have those who were already workers and natives of the coalfield, who came into this parish mainly from the Llyfni, Avon, and Rhondda Valleys: secondly, those who were born in rural areas in South-Western England and South-Western Wales (chiefly in Wiltshire, Somerset, Carmarthenshire, Cardiganshire, and Pembrokeshire), and had settled first of all in other parts of the coalfield and then came on to Glyncoirwg: and, thirdly, those, mostly unskilled labourers, who came to Glyncoirwg direct from rural areas, chiefly South-West Wales.

Diagram VIII represents a series of graphs indicating the history of the disease in the area. The graphs have been constructed on similar lines to those previously described for the Cardiganshire lead-mining area. It may be pointed out that the civic wards which divide this parish are natural units in themselves, and so the special divisions as in North Cardiganshire are not required. An examination of the graphs in Vol. I for the "entire region" brings out many points of interest. The first and foremost is the remarkably low death-rate from tuberculosis as compared with that for any section of the rural area of East Cardiganshire, at any period during the last fifty years. Secondly, the death-rate has remained consistently low over the last thirty years, and, with the exception of a slightly higher death-rate in the early days, there has been little change during the existence of these villages. Thirdly, there is a marked tendency for the resistant type of the disease to be most in evidence, especially after the early period has passed away. Since 1900, "C" cases have been far in excess of "A" cases. Fourthly, the beginnings of industry seem to coincide with the highest "young-adult" death-rate. Fifthly—and this, perhaps, the most striking feature of all—there is a very high infantile mortality from tuberculous diseases.

The graphs of the tuberculosis deaths among children relate to individuals of both sexes under 15 years of age. The death certificates in these cases generally show "tubercular meningitis," "tubercular peritonitis," or "general tuberculosis" as the cause of death. It is a well-known fact that infantile mortality is always high in these mining areas, and it is interesting to analyse the part which tuberculous diseases play in this connection. It is obvious that tuberculosis is more evident in childhood in this area than at the "young-adult," "middle-age," or "old-age" periods. It is interesting also that the "peak" in the children graph for the whole area coincides with a period of very high birth-rate.

Diagram VIII also gives the graphs for the three wards Abergwynn, Glynecorrwg, and Cymmer separately. They do not call for further comment, except in the case of the graphs for the Glynecorrwg ward. Here (Graphs 4 and 5) there appears to be a higher "young-adult" death-rate, both male and female—but particularly male—than in the other wards. The beginnings of industry seem to be associated in this ward with a comparatively high "young-adult male" death-rate, which has gradually fallen during the last fifty years. The graphs indicating the interrelation of the acute and chronic types of the disease (Graph 3), which, however, are here tentatively formulated without reference to the Memorial Association records, show an instability not met with in those of the other wards. It is interesting to think of this area as perpetuating more strongly than the rest the traditions of former rural life with its high "young-adult" death-rate, as it was in this ward that almost three-quarters of the pre-industrial population gathered. This effect would naturally be more marked in the early days than at a later period. The second point of interest in regard to the Glynecorrwg ward is that it is here that the maximum infantile mortality from tuberculosis occurs. The maximum for the period 1906-16 is one of the most marked features of the whole series of graphs. It is difficult to account for such a feature, but it is worth noting that overcrowding is more a feature of this ward than it is of either the Abergwynn or Cymmer wards, and if statistics were available for each ward, Glynecorrwg would also have the highest birth-rate [22]. There is also an interesting correlation with the "young-adult female" deaths. In Appendix B I have given reasons for distinguishing in the "young-adult female" age-group two distinct maxima in the death-rate, one in early youth and the other about the age-period 28 to 32, being the early child-bearing period. In the Glynecorrwg ward this "child-bearing period" maximum is well marked and may have a strong relation to the relatively high infantile mortality from tuberculosis that characterizes this district.

In concluding our remarks on this coal-mining area, we have to bear in mind that we have been seeking to answer two important questions:—Firstly, having found by preliminary investigation the comparative rarity of the disease in these areas to-day, among a population composed mainly of the same physical type which

suffers badly in the rural districts, we were led to infer that this type becomes comparatively immune in the industrial areas; and, further, to ask whether this type has always been immune in industrial areas, or did it suffer considerably on the change over from rural conditions in the early days? Secondly, what further evidence can we obtain to substantiate the inference from the preliminary investigation that the Nordic types are specially liable to attack from this disease in the industrial areas?

At first sight the examination of the Glyncoirwg statistics seems to have led to inconclusive results as far as the answers to the first series of questions are concerned. We have seen that with the comparatively late development of the area a large number of the original comers were drawn, not directly from rural areas, but from other sites on the coalfield where they might have acquired an immunity before coming to Glyncoirwg at all. With this type of immigrant were the unskilled labourers, who generally came direct from rural areas, and among whose ranks it may be argued the early deaths occurred. If this argument is pursued further we should have to seek the ideal conditions for an investigation of this kind in the iron-field of the northern outcrop of the South Wales coalfield between the years 1760 and 1830, when records of the disease would be unavailable, and, if obtained, would be worthless for purposes of analysis. The earliest development of the coalfield drew men from the iron-smelting areas as well as from the rural districts, and a high percentage of the miners in any area in South Wales could trace their ancestry to another South Wales region that had been opened up previously. The following paragraph from a recently written monograph (June, 1927) by Mr. J. Morgan Rees, M.A., sums up the position well:—

“ . . . the real industrial revolution in Wales may be said to start from 1850, because it was only then that Wales ceased to be primarily agricultural and rural, and depopulation increased proportionately to industrial congestion. In Wales, therefore, the true industrial revolution which saw the rise of new industries, new classes of people, new social problems, and new thoughts, sprang from *the industrial* rather than from *the agricultural* activities of the people, and took place with the use of coal and the development of the South Wales coalfield ” [23].

This means that the nature and development of Glyncoirwg may be looked upon as normal and not abnormal, as we are liable to think; and so some importance may be attached to the general conclusions, however tentatively held. It seems as if movement of any description, whether from industrial or rural areas into newly developing areas, has a bad effect, which is shown in the higher death-rate from “ young-adult ” phthisis in the early years in this area.

The answer to the second question is contained in Appendix A, which is the result of a personal investigation into *every* case of death in the village of Abergwynti

for the last twenty-five years. An analysis of the results shows that out of a total number of tuberculosis deaths 54 per cent. are clear cases of Nordic types, 6 per cent. more have reddish hair and may be grouped with the Nords, while a further 15 per cent. have a partial Nordic ancestry. The remaining 25 per cent. show non-Nordic characters. The significance of this becomes clear when it is realized that more than 70 per cent. of the general population have non-Nordic characters. Of the Nordic families involved, roughly the same percentage trace their proximate ancestry to industrial as to rural areas, while the majority of the non-Nordic families involved seem to have moved into the district from other industrial regions.

The above analysis demonstrates clearly the general inference drawn from the preliminary investigation.

What is true of Abergwynfi I know from personal experience to be true of the other villages, and of the South Wales coalfield as a whole. Thus it seems to be well demonstrated that the short, dark, long-headed persons who form such a great part of the population of the South Wales coalfield tend to develop a strong resistance to tuberculosis. This resistance seems to have been acquired early in the development of the coalfield and to have become more pronounced as conditions developed. What tuberculosis disease occurs in these areas has been shown to be very pronounced in individuals with Nordic characteristics, or, with fair elements in their ancestry.

From what has been said concerning the investigations summarized in this paper, it will be seen that the short, dark, long-headed person tends to acquiesce in poor feeding in his moorland home, and there, especially in regions socially depressed by decay of mining (*e.g.* the Rheidol-Goginan area of North Cardiganshire), he tends to be very prone to the progressive type of the disease, or, in other words, when he is attacked by the bacillus in these areas the balance between health and disease quickly goes against him.

On the other hand, in industrial areas, or in the poorer quarters of large towns, where he can get good food easily, his bodily resistance tends to be increased, and the balance is turned in his favour. In such cases there are fewer "young-adult" deaths, and "chronic" cases exceed "acute" ones.

On the other hand, Nordic vigour and activity gives that type good feeding in rural areas, especially as they tend to settle on good agricultural soil. In these areas where village life affords, perhaps, opportunities for some degree of adaptation to infection, "chronic" cases are far more numerous than "acute" ones, and deaths from tuberculosis generally take place at advanced ages. But under conditions of urban life, or in dark, smoke-infested, industrial valleys, this type loses that which keeps his body at high pitch, and the balance between health and disease in tuberculosis soon turns against him, cases of rapid illness and death being common.

Thus, physical anthropological, and their associated cultural characters seem to be determinants of the general constitution of individuals, and these differences of constitution seem to connect themselves not only with adaptability to certain environments, but also with resistance to various diseases.

It is by taking into account the social environmental factor alongside of the racial one, that the movements of the delicately adjusted balance between health and disease in tuberculosis can best be studied.

APPENDIX A.

Physical Anthropology and Ancestry of the entire Tuberculosis Death-rate in the Village of Abercynon for Twenty-five Years (1902-27).

No.	Date.	Sex.	Age.	Occupation, etc.	Cause of Death.	Ancestry.	Anthropological Details.	Remarks.
1	1902. Mar. 12th	M.	23	Coal-miner	Phthisis pulmonalis and hepatic 11 months	Llangyndryne Area, Car. marthenshire	Tall, with red hair	...
2	Mar. 12th	F.	7	Daughter of coal- miner	Tubercular meningitis 14 days	Glyncorrwg and Cwmauon	Parents; medium height, sandy hair, fair com- plexion	Sister of No. 6.
3	May 23rd	M.	22	Coal-miner	Phthisis pulmonalis, year	Cwmlarlha, Swansea Val- ley	Tall, fair, strong build	...
4	May 23rd	M.	37	Coal-miner	Phthisis pulmonalis, months	Corwall (tin-miners)	Short and dark. Parent (father) tall and fair	...
5	Nov. 1st	M.	47	Coal-miner	Pleurisy, 1 month	Swansea Valley	Dark people	...
6	1903. Feb. 11th	M.	18	Coal-miner	Phthisis	Glyncorrwg and Cwmauon	Medium height, tall and sandy	Brother of No. 2.
7	April 14th	F.	39	Wife of coal-miner	Phthisis	Pengraig, Rhondda	Short, dark hair, brown eyes	When she came to the area.
8	Dec. 11th	M.	46	Colliery hostler	T.B. of larynx	North Penbroskeshire	Dark, but both parents tall and fair	...
9	1903. Nov. 19th	F.	38	Wife of coal-miner	Phthisis	Pontydyfen	Sandy hair and light eyes, fresh complexion	Aunt of No. 38.
10	1905. Jan. 12th	M.	59	Relief postmaster	Acute phthisis	Maesteg Area	Fair, of medium height	Father of No. 24.
11	Jan. 19th	M.	63	Coal-miner	Phthisis	North Wales (been to America)	Tall, fair, with blue eyes	...
12	1906. Sept. 28th	M.	51	Insurance agent	Phthisis	Central Cardiganshire	Tall, fair, with light eyes	...
13	Dec. 15th	M.	51	Baptist minister	Phthisis	Skewon and Swansea	Large square features, black hair	...

14	1907. Nov. 10th	M.	1 y. 5 m.	Son of collier	...	T.B. peritonitis, 3 months	Hereford	...	Parents and grand- parents, tall, reddish hair, florid.	Nephew of No. 18.
15	Nov. 23rd	M.	31	Assistant school- master	...	Phthisis	Kidwelly	...	Tall, fair, with blue eyes	
16	June 26th	F.	5 m.	Daughter of miner	...	General tuberculosis	Hereford	...	Parents fair, with blue eyes, tall	Relation of No. 10.
17	Nov. 12th	M.	29	Hairdresser	...	Phthisis pulmonalis, 6 months	Llanelli	...	Medium bright, very fair	
18	Dec. 24th	M.	23	Sawyer	...	General tuberculosis	Hereford	...	Tall, dark hair and grey eyes. Parents tall and fair	Uncle of No. 14.
19	1908 Jan. 30th	M.	61	Colliery labourer	...	Phthisis and hump, 6 months	Herefordshire via Rhondda	...	Short, corpulent, very dark hair and eyes	
20	Oct. 9th	F.	21	Domestic duties	...	Acute phthisis, 3 weeks	Glyn Neath	...	Tall, sandy hair and fair complexion	Relation of Nos. 49 and 57.
21	Dec. 28th	F.	25	Wife of bookseller	...	Phthisis pulmonalis, 10 months	North Wales via Rhondda	...	Tall, fair, with blue eyes	
22	1909. April 10th	F.	10 m.	Daughter of coal- miner	...	Phthisis, 7 weeks	Parents from Radstoke, near Bath	...	Both parents tall and very fair	Sister of No. 61.
23	June 23rd	F.	10 m.	Daughter of coal- miner	...	Phthisis pulmonalis, 7 weeks	Somerset	...	Tall and sandy (parents)...	
24	Dec. 15th	F.	33	Daughter of spinster	...	Phthisis pulmonalis	Maesteg	...	Fair hair and light eyes	Daughter of No. 10.
25	1910. Jan. 5th...	F.	16 m.	Daughter of colliery haulier	...	T.B. abscesses in groin, 6 months	Wiltshire	...	Rather short, with dark- brown hair (parents)	
26	Jan. 26th	M.	17	Railway porter	...	General tuberculosis, 9 months	Devonshire via Treherbert	...	Dark, slight, pale com- plexion	Ill on arrival at Abercynfi.
27	July 11th	M.	24	Coal-miner	...	Phthisis pulmonalis, 3 months	Yorkshire coalfield	...	Tall, slight, with dark hair and grey eyes	Not long resident at Abercynfi.
28	Aug. 7th...	F.	47	Wife of colliery labourer	...	Phthisis, 8 months	Maechen (coal), Monmouth- shire	...	Tall and dark	
29	Aug. 19th	F.	25	Daughter of dairy- man	...	Tuberculosis, acute	Father, Irish, fair; mother, Swansea, dark	...	Tall, well built, rather dark, with grey eyes	
30	1911. Jan. 30th	M.	3	Son of colliery haulier	...	Tuberculosis	Somerset via Rhondda	...	Short, with sandy hair (parents)	

APPENDIX A—continued.
Physical, Anthropology and Ancestry of the entire Tuberculosis Death-rate in the Village of Aberynnyfi for Twenty-five years (1902-27)—continued.

No.	Date.	Sex.	Age.	Occupation, etc.	Cause of Death.	Ancestry.	Anthropological Details.	Remarks.
31	1911. Feb. 13th	M.	20	Coal-miner	Disseminated tuberculosis	Haverfordwest, Pembrokeshire	Tall, fair hair, with blue eyes	
32	Dec. 13th	M.	44	Coal-miner	Chronic phthisis and bronchitis	Newbridge (coal), Monmouthshire	Short and dark ...	
33	1912. Jan. 23rd	F.	49	Wife of colliery examiner	Phthisis pulmonalis, 9 months	Pembrokeshire via Maesteg	Tall, broad features, black hair	...
34	June 12th	F.	45	Wife of coal-miner	Phthisis pulmonalis, heart failure	Carmarthen Town via Neath	Fair, with inclination to be tall	
35	1913. Mar. 25th	F.	16	Daughter of colliery labourer	Phthisis, cardiac failure...	Maesteg (coal), Monmouthshire	Tall, fair hair and blue eyes	
36	Mar. 28th	M.	64	Coal-miner's haulier	Phthisis, ascites ...	Cwmavon (old family) ...	Tall, with sandy hair ...	
37	Sept. 16th	F.	31	Wife of coal-miner	Phthisis pulmonalis	Wiltshire ...	Tall and dark ...	
38	1915. Jan. 22nd	F.	14 m.	Daughter of colliery haulier	Phthisis ...	Pontrelydwen, Avon Valley	Father, short and dark; mother, fair, with blue eyes	Niece of No. 9.
39	April 24th	F.	13	Daughter of clock-weighter	Phthisis ...	Mother, Cymmer; father, Pembrokeshire via Cymmer	Tall, sandy hair, light-grey eyes	
40	Aug. 3rd	M.	1 m.	Son of colliery labourer	General tuberculosis from birth	Hereford ...	Parents tall and sandy ...	Relation of No. 16.
41	Dec. 20th	M.	23 m.	Son of soldier and collier	General tuberculosis	Staffordshire ...	Father tall, with dark-brown hair	
42	1916. Jan. 18th	F.	31	Wife of colliery repairer	Phthisis ...	Father, South Glamorgan; mother, Llanguwm, Pembrokeshire	Dark hair and grey eyes; mother, tall, red hair and blue eyes	Sister to No. 18.
43	May 8th...	M.	63	Colliery labourer ...	Phthisis ...	Haverfordwest, Pembrokeshire	Tall, fair hair and light eyes	

44	Aug. 31st	M.	22	Road labourer	Phthisis	...	...	Somerset	...	Tall, square features, dark hair	...
45	Sept. 29th	M.	13 m.	Son of coal-hewer...	Tuberculosis	...	...	Father, Staffordshire mother, Monmouthshire	...	Father, dark; mother, fair	...
46	Dec. 25th	M.	12	Son of colliery haulier	Tubercular meningitis	...	...	Swansea Valley	...	Family short, dark and pale	...
47	1917. Jan. 6th...	F.	59	Wife of colliery repairer	Phthisis pulmonalis	...	...	Grandparents from Pen-broekshire; parents, via Maesteg	...	Medium height, sandy hair, grey eyes, sulrow	...
48	May 13th	F.	22	Household duties...	Phthisis pulmonalis	...	...	Father, tall, broad head, dark; mother, tall, red hair	...	Red hair, brown eyes, fresh complexion	Sister to No. 42.
49	June 26th	F.	40	Wife of coal-hewer	Phthisis pulmonalis	...	...	Maesteg	...	Medium height, fair hair, and light eyes	Relation to No. 20 and mother of No. 57.
50	Oct. 3rd	M.	30	Coal-hewer	Phthisis pulmonalis	...	...	Llanelli	...	Short, dark, well built	...
51	1918. Jan. 30th	M.	2	Son of colliery engine-driver	General tuberculosis	...	...	Somerset and Wiltshire	...	Both parents tall and fair	...
52	Feb. 22nd	M.	30	Coal-hewer	Phthisis pulmonalis	...	...	Radstock, near Bath	...	Tall, fair hair, light eyes, fair complexion	...
53	April 27th	F.	31	Teacher, daughter of farmer	Phthisis pulmonalis	...	...	Breconshire via Rhondda	...	Tall, fair, blue eyes; many red-hair folk in family	...
54	Oct. 1st	M.	45	Mason's labourer	Phthisis pulmonalis	...	...	Hereford via Maesteg	...	Tall, sandy hair, light eyes	...
55	Nov. 1st...	M.	13	Son of coal-hewer...	Phthisis pulmonalis	...	...	Maesteg	...	Parents short, dark-grey eyes, fresh complexion	...
56	Dec. 23rd	M.	25	Colliery haulier	General tuberculosis	...	...	Rhondda	...	Father short and dark; mother tall and fair	...
57	1919. Jan. 23rd	M.	3	Son of coal-hewer	General tuberculosis	...	...	Maesteg	...	Parents and child fair	Son of No 49.
58	Mar. 8th	F.	39	Wife of coal-hewer	Phthisis	...	...	Cornwall	...	Tall and dark	...
59	April 22nd	M.	33	Colliery repairer	Phthisis pulmonalis	...	...	Llanamlet, near Swansea	...	Medium height, fair hair and light eyes	...
60	1920. May 26th	F.	18	Daughter of colliery haulier	Phthisis	...	...	Rural people from near Llanelli	...	Tall, fair, blue eyes	...
61	June 29th	M.	23	Collier, ex-Navy Service	Heart failure, tuberculosis, 15 months	...	...	Radstock and Bath	...	Tall, fair, with blue eyes...	Brother of No. 22.

APPENDIX A—continued.

Physical Anthropology and Ancestry of the entire Tuberculosis Death-rate in the Village of Abergwynt for Twenty-five years (1902-27) - continued

No.	Date.	Sex.	Age.	Occupation, etc.	Cause of Death.	Ancestry.	Anthropological Details.	Remarks.
62	1920. Nov. 23rd	M.	15	Colliery boy	T.B. peritonitis, pneumonia	Rhondda ...	Short, with red hair	Brother of No. 63.
63	1921. June 5th	M.	6	Son of colliery worker (hewer)	T.B. peritonitis	Rhondda ...	Parents short, with red hair	Brother of No. 62.
64	Nov. 1st	M.	38	Colliery repairer	Pulmonary tuberculosis	Maesteg ...	Short, with fair hair and blue eyes	
65	1923. Feb. 16th	M.	62	Colliery hostler	Pulmonary tuberculosis	Devonshire	Very fair hair and light eyes, short	Father of No. 69.
66	July 4th	M.	20	Coal-hewer	Pulmonary tuberculosis	Ireland via Stafford	Fair hair and eyes and over medium height	---
67	Sept. 4th	F.	41	Wife of colliery haulier	Pulmonary tuberculosis	Glynnorh	Sandy hair and fair complexion	Relation of No. 20.
68	1924. Feb. 9th	M.	60	Colliery smith	Pulmonary tuberculosis	North Wales (rural)	Tall, with dark-brown hair	
69	April 1st	M.	36	Coal-hewer	Phthisis (silicosis?)	Devonshire	Very fair hair and light eyes; rather short	Son of No. 65.
70	July 30th	M.	16	Colliery engine-driver	T.B. meningitis	Three generations ago, Devonshire; born in Abergwynt	Tall, with dark-brown hair	
71	Sept. 29th	F.	24	Wife of grocer	Phthisis	North Pembroke-shire via Maesteg; husband, Cardigan	Hair dark, eyes light blue, slight, fair skin	One of female twins; contracted T.B. after marriage.
72	Dec. 2nd	M.	5	Son of coal-hewer	T.B. meningitis	Llanelli via Glynceorgwg	Parents fairly tall, with medium-brown hair; light eyes	
73	1925. Mar. 28th	F.	33	Spinster	Phthisis pulmonalis	Avon Valley; born at Abergwynt	Hair fair, eyes light. Father, reddish; mother, dark brown	
74	1927. Mar. 9th	F.	20	Spinster, milk vendor	Phthisis pulmonalis	Pembroke-shire; born at Abergwynt	Medium height, very fair hair, light eyes	

APPENDIX B.

Relation of "Duration of Illness" to Age of Individuals at Death.

I.—CARDIGANSHIRE.

The object of this note is to give the results of an examination of some 500 cases of death from tuberculosis in Cardiganshire, based upon records in the possession of the Welsh National Memorial Institute. The object of the inquiry was to establish what should be the local age-limits for the analysis of phthisis death-rates, as it was felt that Dr. Brownlee's age-limits, based largely on his experience of the disease in large towns, were too wide to afford a satisfactory basis on which to analyse the records of an essentially rural area in Wales. An attempt to arrive at a solution was made by using Colonel Cummins' suggestion, that all cases with a duration of illness of two years or over should be considered as "chronic or recrudescence" cases.

An attempt was made to arrive at the duration of illness for the 500 cases in question, and the date on which each patient first visited the Tuberculosis Physician was never relied upon as the starting-point of illness, but the date as fixed by the Tuberculosis Officer, after a careful enquiry into all previous illnesses, was always used. Diagrams *a* and *b* on Diagram IX illustrate the result. Each square represents a group of individuals at various ages at death, and unshaded squares represent cases with a duration of illness under the fixed period: those whose illness extended over a longer period are shown by a black square.

The male and female records are given separately. It seems as if the females in Cardiganshire were more susceptible to the "young-adult" type of the disease than the males. It begins about the age of 12 and extends roughly until the age of 21. There is a secondary outburst between 25 and 30 which coincides with the early child-bearing period. In the male the "young-adult" phase seems later in its onset and to reach a maximum about the age of 22.

It was also felt that two years was too long a period in Cardiganshire on which to base a differentiation between the "acute" and the "chronic" type of illness, and so eighteen months was chosen in order to make certain that we were dealing with the "young-adult" type of case only. The result was almost identical, and so the eighteen months' duration period was used as a basis.

This investigation has the merit of taking into account the peculiar local conditions, which must always be borne in mind.

II.—GLYNCORRWG.

Diagrams *c* and *d* are constructed for the Glynecorrwg Area on the same basis as the Cardiganshire ones. Here it should be noted that although the inquiry covers a period of years three times the length of the period available in Cardiganshire, yet the actual number of cases considered is much less. On the whole these diagrams call for little comment beside the fact that "young-adult" phthisis seems again to be more common among females than males. Between the ages of 16 and 23 the acute type of the disease seems more prevalent among women.

A higher percentage of the Glynecorrwg males show "middle-age" and "old-age" deaths, with longer periods of illness than is the case among Cardiganshire males. This is a well-known feature of the male population of industrial areas, but the Glynecorrwg statistics suggest that it is unwise to generalize in this respect regarding the females.

The "peak" (especially of acute deaths) about the age of 31 among the females is very interesting, especially in the light of what has already been suggested in the text about the possible association of this feature with the high infantile mortality from tuberculous diseases in the area.

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THE SIGNIFICANCE OF HEAD-HUNTING IN ASSAM.

[WITH PLATES XXXVIII-XLII.]

By J. H. HUTTON.

IN his recently published book on Borneo,¹ Dr. Hose has suggested two possible sources of the practice of head-hunting by the tribes of that island—the one is a desire for human hair for use as an ornament for weapons and dress: the other, and the one to which he inclines, is the desire for human beings to send as slaves to accompany the dead to the next world.

Now, the latter idea certainly exists in Assam, and is to be found at present among the Kuki tribes, and formerly among the Ahoms, who buried many slaves with their princes.² Head-hunting, however, is found among tribes who certainly have not this belief, and seems to flourish more vigorously where it is absent than where it is present. Similarly, in Borneo, Dr. Hose tells us³ that the Iban is a more inveterate head-hunter than the Kayan, though he does not need the heads for his dead relatives: and although Dr. Hose's opinion, that the Ibans have acquired the practice from the Kayan, may be true in Borneo, I am inclined to think that the process on the mainland has been the other way round, and that the practice of taking heads to put on graves is merely the result of the influence of contact with head-hunters on a people practising human sacrifice in their funeral ceremonies. To demonstrate this, it is necessary to show that head-hunting is part of a definite cult, and has a meaning and purpose of its own entirely independent of mere blood-thirstiness or of any idea of providing post-mortem servitors for the dead. I propose, therefore, in this paper, to sketch what seems to be the theory underlying head-hunting in Assam. It is probable that any head-hunting cult existing there is intimately connected with similar cults in south-eastern Asia and Indonesia, and it is possible that the connection may really extend a great deal further afield than that.

Now, the religion of the Naga Hills is centred very largely upon fertility-cults. The agricultural year is marked by ceremonies intended to promote the growth of the crops, and the feasts of merit by which individuals acquire social status are likewise marked by ceremonies to promote fertility and magical rites, for infecting the village as a whole with the fertility of the individual whose crops and cattle and affairs have so prospered that he is able to afford the feast. The fertility of

¹ *Natural Man*, p. 145.

² Gait, *History of Assam*, p. 121.

³ *Natural Man*, pp. 33, 144.

the family or of the village is promoted by the erection of phallic symbols, and the village is infected with the fertility of the erector of them by the simple process of dragging them all round the village. I need not go into details to demonstrate this, as I have already dealt with this aspect of the Naga Hills fertility-cults in previous papers in the *Journal*.¹ It will be enough here to say that the erection of menhirs in the Naga Hills is closely bound up with a magical fertility-cult, and the menhir itself is by origin a phallus (Pl. XXXVIII. fig. 1). It is also associated with water though this aspect of the cult has decayed: but both menhirs and stone sitting-places, the erection of which sometimes takes the place of that of menhirs, are to be found in association with artificial tanks or ponds, as in the case of a famous menhir at Khonoma, of the *baze* at Pulomi ("Kenoma"), and the *dahus* in the village and the great group of menhirs at Gwilog ("Togwema") in the Manipur State.² The Manipuris, too, erect phallic poles in their tanks and the Assamese "marry" a new tank with or to an erect pole to make it hold plenty of water: while at Ungma, in the Ao country, stones are placed in a roadside puddle which increases the quantity of water in the pool, and so the quantity of rice in the crop, apparently because it causes more or less rain according to the depth of the water around the stones. In some cases, as at Khonoma, menhirs are actually erected in the rice fields themselves, cultivation there being permanent and irrigated, not shifting.

Now, if the magical phallus be a method of ensuring fertility, it is not apparently in itself the source of fertility, for this seems to lie in the souls of the dead. This is not explicitly stated in so many words by any Naga tribe to my knowledge, and it would appear to be contradicted by the eschatological beliefs ordinarily recounted to a questioner on these matters, but it is very clearly indicated by practices connected with the dead in various tribes. Thus, among the Angami of the Khonoma group of villages, as among the Kachha Naga (Nzemi) of Nakama and Kenoma who adjoin Khonoma, the graves of warriors used to bear a wooden image of the dead (Pl. XXXVIII. fig. 3). This image was always destroyed—thrown away into the jungle, that is—on the last day before the sowing of the millet crop, to the accompaniment of much firing of guns as at a funeral. In the Kohima group the image, which is still in use, has to be taken down and finally disposed of (it is buried alongside the real grave, or, in some cases, burnt) in the month that follows that in which the Terhengi (Harvest Home) festival is celebrated, failing which it is kept a whole twelve months longer till that time in the next year, but "it is not good to let it stand too long." When represented in the most simplified form possible, the human figure and the phallus become virtually

¹ "Carved Monoliths at Dimapur and an Angami Naga Ceremony," "The Meaning and Method of the Erection of Monoliths by the Naga Tribes," (*Journ. Roy. Anthropol. Inst.*, li.) "Carved Monoliths at Jamügüri in Assam," (*Ibid.*, lvi.) In the first of these three articles the word *perin*, on pp. 67 and 68, should probably be translated "fertility" or "fertilizer."

² See "The Use of Stone in the Naga Hills," (*Journ. Roy. Anthropol. Inst.*, lvi.)

identical which may have caused some confusion, but that this wooden figure contains or was formerly believed to contain the soul of the dead is sufficiently indicated by the practice of a trans-frontier section of the Konyak tribe, who, like the Angami, make much use of megalithic stonework, in making wooden figures for all their dead and assembling them in family groups under small thatched shelters outside their villages (Pl. XXXIX, figs. 1 and 2). These figures are provided with horn-like projections on the top of their heads,¹ between which the skull is placed in order that the soul may leave it and enter the wooden figure, after which the skull is removed, and food, etc., provided for the soul where the figure is. Others of the Konyak tribes use basket figures, and some use stones, into both of which the skull is actually inserted, in the one case temporarily, in the other permanently (Pl. XL, figs. 1 and 2). Col. Gorden states that the Khasis of Shella also put the bones of their cremated dead into posts,² Some Angamis have, moreover, a tradition that, if a man die, the spirit of the crops produces more grain, but it was "tabu to talk about such things as crops being better if men died, since it was bad for men to die."³

The association of the souls of the dead with the fertility of the crops is doubtless to be seen in the Rengma custom of digging a pool in front of the soul statue. If it fills, the descendants of the dead man become rich. It is again to be seen in the Ao custom, observed still only in one or two villages, by which the smoke-dried body of a dead relative is preserved in the house until after the eating of the first-fruits of the harvest following, and then only laid out on its platform outside the village near the village path.⁴ But it is seen most clearly in the custom of the Kalyo-Kengyu of Laruri ("Karani") village, where the corpses are all preserved in the houses until the first day of the ceremony which inaugurates the sowing of the crop,⁵ when all the village dead are brought forth together, the corpses broken up, and the bones carefully counted and placed in the granary, while the boat-shaped coffin and the shreds of flesh and the funeral mats that have covered them are all put away (the process is described as "thrown away") in a rough shelter in the uncultivated jungle below the out-kirts of the village. The inference clearly is that the souls remain in the smoke-dried bodies till they are pulled to pieces,⁶ and

¹ See *Map*, April, 1927. Plate D, Fig. 4.

² *The Khasis*, p. 137.

³ This statement was made to me by Lherkhoh, son of one of the head men of Muzum, an intelligent and reliable informant.

⁴ Mills, *The Ao Nagas*, p. 279.

⁵ The Kukis, according to Murne, (*Austro Researches*, vii, p. 194), used to burn the year's collection of corpses, till then exposed on platforms, at "the spring festival."

⁶ It has been stated that the ancient Egyptians embalmed their dead because they believed that the soul would not migrate while the body remained entire. The Laruri custom suggests the existence of a similar belief in that village, particularly as the soul has a miniature dwelling erected for it outside the village for its use during the time that elapses between the death and the final breaking up and disposing of the body.

are then free to enter the soil and fertilize the crop that is just being sown: while the placing of the dried bones in the granaries is conceivably an additional inducement to the soul-matter to resolve itself into grain, and so reach the same resting-place as the bones by a more devious and profitable route. That this is the underlying principle of the association of the dead with the crops is very strongly supported by the Karen theory of the soul recorded by Marshall,¹ who reports that the Karens state quite explicitly that the *kha* (souls) of human beings become a sort of pupa (*syhoo*) which resembles an egg or bladder filled with a vaporous substance. When this pupa bursts, its contents spread over and fertilize the fields, and their fructifying substance passes again into bodies through the grain eaten, and so again to the seminal fluid enabling men and animals also to propagate life.

So much for the connection between the soul and the crop, bringing back the mind irresistibly to someone's ingenious suggestion that the theory of the transmigration of the soul arose from the sight of the fresh corn springing from the grave of one whose burial portion had included grain.

The second point in my argument is that the soul resides in the head, or, at any rate, more especially in the head than in other parts of the body. This is explicitly stated by some of the Ao Naga tribe who regard the vibration of the membrane over an infant's fontanel as caused by the movement of the soul,² conceived of, I think, as shaped like a very diminutive replica of the body inside the head. It is perhaps to be inferred from the Chang Naga statement that yawning is caused by the soul's dancing about inside the mouth—no doubt, in its impatience to leave the body during sleep. And I think that it must certainly be inferred from the beliefs that exist in this area as to the sanctity of the head. This sanctity is explicitly stated by Pinto of some people of Burma, I think the Peguans,³ and it is to be inferred from such customs as that of the Tkado, who usually tabu the use of a man's pot of hair-grease to any relative other than his wife, and that of separate burial for the head, practised by the Konyak group of Nagas, by the Chang and Phom Nagas and by the Siyin Chins and occasionally by other Kuki tribes, the body being left to rot while the head is buried in a pot or a stone cist or secreted in a niche in a cliff (Pl. XL, figs. 2 and 3). The location of the soul in the head is also suggested by the Angami habit of putting a drop of liquor on the forehead for the *ropre* of the drinker before actually drinking: by the belief of the same tribe that a leopard or tiger-skin, when used to cover a shield, should always be put on head downwards because, if the head of the animal be raised above that of the

¹ *The Karen People of Burma*, p. 222.

² Mills, *The Ao Nagas*, p. 225.

³ In the case of the Peguans, I think the clun is specified by Pinto as the sacred spot, and it is perhaps significant that in some Konyak villages the jaw is the most important part of the skull and receives distinctive treatment. The same idea seems present perhaps in the Khasia Hills (cfr. Gurdon, *The Khasis*, pp. 132-4).

shield-bearer, the former will cause the latter to stumble and fall: by the practice of the Angami again in sticking a scrap of wormwood leaf in the centre of the forehead to avert the influence of evil spirits or of the "mana" of strangers (a practice which perhaps indicates the origin of the Hindu caste-mark): and by the Ahom practice of sitting before a superior, as in Java, so as to avoid raising the head above the superior's head. The fact that the Konyaks of certain villages transfer the soul to a wooden figure by putting the skull of the dead man on the top of the figure has already been mentioned. The idea that the soul is located in the head has perhaps arisen from the sight of the diminutive reflections in the pupil of the human eye,¹ but, however that may be, the idea that the soul resides in the head is well established in Assam and Burma and the Naga Hills are no exception.

The soul, then, is a fertilizer, and it resides in the head. Obviously, therefore, if fertilizing soul-matter is required, the way to get it is by cutting off and taking home a head. And that this is the underlying purpose in head-hunting there are many indications. The connection between the taking of heads and the well-being of the community that takes them has been pointed out before. There is the well-known instance of the Angamis of Kigwema, who took a couple of heads because there was small-pox about.² This, I suggest, was not at all by way of sacrifice to the spirit of small-pox, but to add to the soul-matter of the clan, and so increase its powers of resistance to the disease. It would not be until the idea of soul-matter was lost that the idea of a sacrifice would come in to replace it. Again, I strongly suspect that the true reason of the general objection on the part of Naga girls to marriage with a man who had not taken a head is, or was, based on an idea that until he had brought back a little surplus soul-matter from outside a man was less likely to be fertile and beget stout sons than a successful warrior would be. As for the direct association of the head and the crop, the case of the Wa of Burma may be cited.³ With them head-hunting is directly connected with the springing of the crop and appears to be a purely seasonal duty, the opening and closing dates for this sport being fixed and known to everybody and heads out of season for the rest of the year.

Heads taken by Nagas are treated in various ways, but the idea of the acquisition of the soul is generally present, and is discernible in the procedure adopted.⁴ In nearly all cases steps are taken to induce the captured soul to call its relatives to

¹ In Hawaii a human eye was put in the oil which was used to anoint a king. (Ratzel, *History of Mankind*, i. p. 298.)

² See *The Angami Nagas*, p. 160.

³ Scott and Hardman, *Gazetteer of Upper Burma and the Shan States*, I, i, pp. 430 and 496-500.

⁴ In the Garo Hills the soul of a man who is killed by an elephant or a tiger is reincarnated in the body of such an animal (A. Playfair, *The Garos*, p. 105), and the idea suggested is that that sort of animal has acquired the soul-matter. The Garos also at one time made grave-figures with projections apparently intended to hold on the skull like the Konyak Nagas referred to, and there is such a figure in the Indian Museum at Calcutta.

come and have their heads taken too—a danger which is countered in some cases by displaying something to attract the souls back to their own village. Thus, when Chentang had taken a couple of heads from Sangpur in 1923, the relatives of the dead hung out the baskets of the latter outside the village on the slope towards Chentang, and put stones in them from Sangpur land to catch the attention of the souls in Chentang and remind them of their native soil and so lure them back. The Yimtsungr, as also sometimes the Sema, feed the soul within the head with choice tit-bits of fat skewered to the mouth and eyes, that it may call the souls of its relatives and decoy them with the prospects of a like feast. The Lhota hangs his enemy heads on the village head-tree, a *figus*, below which rest the *oka* stones—round stones which are the repository of the "luck" or the "mana" of the village, and which are carried with the inhabitants on all migrations¹ (Pl. XLI, fig. 1). This use of a *figus* for the heads is another instance of fertility-magic. A *figus* is always used by Lhotas for enemy heads as it often is by Konyaks and Phoms for the corpses of the dead. Some Konyaks use the *euphorbia*, a cactus-like tree or plant, which is also revered by Kacharis,² who also associate funeral ceremonies with the harvest following the death.³ The *figus* and the *euphorbia* have this in common, that both exude a milk-like fluid when broken. That this is the reason of their association with fertility is suggested by the fact that the *figus* was used to give fertility to barren women in Africa and Italy, and was worshipped for that reason by the Akamba,⁴ while the Aikuyu regarded it as the launt of souls of the dead,⁵ and it was worshipped to obtain offspring in the south of India.⁶ The tree used for a head-tree by the Ao, as by some Kachha Naga, is the "madai"—an *agathis*, a tree of peculiar vitality, any branch of which will take root and grow if stuck into the ground.

The head taken by an Angami is ultimately buried face downwards, but it is first placed upon the *Kipachie*, the sacred stone of the village, into which, no doubt, the soul enters. The Tangkhul puts his head on a pile of stones in the village,⁷ and the Konyak hoists his on a bamboo which is tied to an erect menhir (Pl. XLI, fig. 3), or else exposes it on a stone table, in either case putting up a small erect stone for each head taken, and transferring the skull ultimately to the house of the chief or to the bachelors' hall, each skull being, in some villages, decorated with a pair of buffalo horns, probably as a fertility symbol (Pl. XLII, figs. 1 and 2).

This view of the significance of head-hunting seems to me confirmed by occasional cases in which men have taken the heads of their own side and carried them home rather than let them fall into the hands of the enemy. I can only give one

¹ See Mills, *The Lhota Naga*.

² Endle, *The Kacharis*, pp. 30, 36.

³ Soper, *Kachari Tribes in the North Cachar Hills*, p. 40.

⁴ Frazier, *The Golden Bough*, i, pp. 313, 316, 317; viii, p. 113, *Ibid.*, ii, p. 316.

⁵ Frazier, *Folk-Lore in the Old Testament*, iii, p. 31.

⁶ Hodgkin, *Naga Tribes of Manipur*, p. 117.

instance from the Naga Hills, and that is the case of an attack by Changs on Phempak, when the attackers lost about 30 killed, it is said, but cut off their heads and took them home with them, but the Ibans of Borneo customarily cut off the heads of their slain comrades and bury them at a distance.¹

One or two other considerations arise in this connection. Clearly head-hunting, it based on the acquisition of soul-matter for the fertilizing of the crop, might develop into human sacrifice, and the idea of the sacrificed life being an offering to a god would grow up as the original motive became obscured and forgotten. It is not, therefore, surprising to find among Naga tribes survivals of what appears to have been human sacrifice, as among the Kachha Nagas and the Lhotas, who spear a rude wooden figure at certain occasional festivals, or among the Angamis, who kill a calf and sometimes a puppy dog at the *Terhengi genna* (Harvest Home) after investing them with certain attributes of human beings.² And among one of the Konyak tribes on the Burma side of the Patkoi range human sacrifice actually does survive in a limited area, while among the Rangpang Konyaks on the Assam side it did survive until our frontier officers came into regular contact with them some years ago. So, too, this theory of head-hunting suggests the principle on which some cannibalism, at any rate, has been explained—the eating of an enemy to acquire his attributes. The greater the warrior in the Naga Hills, the more highly prized is his head: and it is perhaps significant that, although no cannibalism is known among the Naga tribes, all tribes have the tradition of a cannibal village “just a little further east, beyond the next range of hills.” Cannibalism has actually been reported of the hill tribes of Assam, though only on the very doubtful authority of a Dutch sailor shipwrecked in the Sunderbans and taken to Assam as a foreign artillery-man in the expedition of Mir Jomla in the seventeenth century.³ Some significance, however, may perhaps be attached to the popularity of an ornament called “enemy’s teeth,” in which the teeth seem to be represented by rows of cowries, and an early missionary in Assam reported that some of the Nagas (a Konyak tribe) actually wore necklaces of real teeth taken from their enemies.⁴ But, if this was so, the habit has apparently died out. It is also a fact that part of the head of a British official killed at Khonoma in 1880 was tasted by the young warriors of the village. The reason given is that the white flesh looked so good, but one may suspect that the idea of absorbing white attributes was not entirely absent.

The practice of sacrificing captives on graves to minister to the dead in another world has been mentioned already. It was practised by the Kayans in Borneo and by the Kukis and Ahoms in Assam. In the case of both the Kukis and the Kayans the practice is to some extent confused with head-hunting, as also in the case of the

¹ Hose, *Natural Man*, p. 145.

² See *Journal, Roy. Anthrop. Inst.*, lii, p. 59.

³ *Relation du Naufrage d'un Vaisseau Hollandois, nommé Ter Schelling, vers la Côte de Bengale* (Amsterdam, 1681), p. 73.

⁴ Owen, *Naga Tribes in Communication with Assam* (1844), p. 15.

Kagoro of Nigeria,¹ and it seems to me extremely likely, in the case of the Kuki at any rate, that the confusion has arisen as a result of the contact between a people who considered it necessary to send their dead to Paradise fully accompanied by slaves and chattels, and a people with other eschatological beliefs, but who practised head-hunting in order to obtain soul-matter. A head-hunter imbued with the idea that the head contained the soul, but wishful or compelled to provide a soul for a dead chief, would find it much easier to bring in the head instead of the whole body: the same combination of ideas would naturally give rise to the Ao theory of fertility of the crops as the gift of dead ancestors, and the interaction of ideas between the head-hunting Naga and the slave-hunting Kuki has obviously much to answer for in the Naga Hills, where the Ao Naga again holds that the souls of the heads he takes serve him in the next world, while the Thado Kuki used to hunt for the heads of men and animals to hang them up on his father's grave. The Kachin, probably less influenced by Naga beliefs than the Kuki who preceded him down the Chindwin valley, does take heads, but merely seems to produce them, in order to prove the truth of his claim to have killed an enemy, and then to throw them away. It appears to me that the truth is, that the practice of head-hunting, the erection of megaliths, and the theory of the importance of soul-matter as a fertilizer belong to the Naga culture in contradistinction to the Kuki culture, and are to be associated with the buffalo-keeping tribes who inhabited the hills before the gaur or mithun-keeping Kukis, who seem to have no definite megalithic culture of their own, began to filter into their fastnesses through the denles from the Chindwin valley. The mithun is unquestionably of more recent introduction than the buffalo, and the Angamis have traditions of the time when only buffalo were kept and the mithun was unknown. On general grounds, I am inclined to associate the buffalo with an Austro-Asiatic or Indonesian culture, and the mithun with a Tibeto-Burman culture,² and to assign the head-hunting and soul-fertilizer beliefs to the same Austro-Asiatic or Indonesian culture, distinguishing them entirely, in provenance, from the practice of sending slaves to Paradise with dead chiefs.

It remains to consider for a moment the question of head-hunting elsewhere. I do not propose to plunge into the Diffusionist controversy, but head-hunting is a widespread practice, and the question obviously arises as to how far head-hunting in other areas may be based on the same underlying theory as it is in Assam. In Indonesia, at any rate, I think I may fairly assume that if the view put forward holds good for Assam, it is almost certainly good for the whole Indonesian area. The Cham of Annam bury close to their rice-fields.³ Beliefs as to the soul in the Celebes differ little, or not at all, from those in Assam, and to read an account of a hill tribe in Borneo or the Philippines gives a Naga Hills reader a vivid impression of

¹ Tr. Macarrie, *Tribes of Head-Hunters of Nigeria*, p. 178.

² See my note on p. 78 of Mills' *The Ao Nagas*.

³ Bartheson, *Tales from an Iliad Province*, p. 314.

reading of some Naga tribe with whose general culture he is perfectly familiar, but whose actual acquaintance he has never made, and, in the case of the soul-figures of the Igorôt of Luzon, the technique appears from photographs to resemble closely that of the Angami Nagas, at any rate in the representation of the human head. Further afield, however, there seems to be a pretty clear cultural connection between the Naga Hills and Melanesia, and it may be pointed out that throughout the Pacific to New Zealand head-hunting seems to occur¹ in conjunction, at any rate sporadically, with certain beliefs in stones, more or less phallic in nature: with the custom of erecting menhirs and dolmens; with the custom of erecting soul-figures for the departed: with the idea of the sanctity of the head: and with the custom of separate disposal of the head in burial.² In some cases (*e.g.* in New Guinea and in the Society Islands)³ we actually find that the head of the deceased is inserted into a chamber in the soul-figure or affixed to the top of it, affording a very close parallel to the Konvak practice already described, while in New Britain heads were worn as masks in order that the soul of the dead owner might enter the wearer.⁴ Even as far off as New Zealand we find head-hunting associated with the use of "posts of vitality," and with cases of the decapitation of one's own dead to prevent their heads from falling into the hands of the enemy.⁵ It is moreover at least suggestive that the Ao Naga should use the word *tup*⁶ for the heavenly counterpart of his earthly body, while *ti* is the Polynesian word for the wooden or stone figure erected for the soul to dwell in. The probability of this being a mere coincidence is lessened by the fact that the Angami and Sema words (*perrut*, *pinu*) for the segregative tabu placed on a community appear to be linked up through the Malayan *buwu* to the Polynesian words *puwi* and *tuputu*, with more or less the same sense throughout.⁷ In Australia again the ghost of the slain is believed to enter the slayer.⁸ Even as far off as South America there seem to be traces of the same association of head-hunting with a transfer of the soul-matter, with which are associated what may conceivably prove to be cultural links with Indonesian head-hunters. At any rate the head, or the hair of it, is considered by the Jivaro to be the seat of the soul.⁹

Going in the opposite direction—north-west—it is not so easy to cite parallel cases. A connection between the dead and the harvest appears, as we might

¹ *E.g.* see Turner, *Nineteen Years in Polynesia*, p. 301.

² See "Assam and the Pacific," in *Man in India*, iv, No. 1, for a number of parallel instances. Frazer, *Belief in Immortality*, i, pp. 311, 321; ii, pp. 323-5.

³ Ratzel, *History of Mankind*, i, p. 298.

⁴ "A Pakeha Maori," *Old New Zealand*, ch. vi.

⁵ Mills, *The Ao Nagas*, pp. 223-6.

⁶ Fidd. Evans, "Kompman," *Man*, May, 1920.

Haddon, quoted by Tremearke, *Tribal Head-Hunters of New Guinea*, p. 181.

⁷ Thomson, "Shrunken Human Heads," in *Discovery*, July, 1924. The idea that the soul is located in the hair is also present in the Indonesian, and, perhaps, in the Mikronesian area, and may account for the use of the hair of the victim for the insignia worn by the victor among the Naga, Iban, and Marquesan head-hunters.

expect, in the Munda tribe,¹ but we must go as far as Kafiristan to find head-hunters. There, however, we do find them using what seem to be soul-figures executed with a technique which as regards the head again seems to resemble that of the Angami and the Igoröt. We also find them cutting off the heads of their own dead to save them from the enemy, and showering grains of wheat on returning head-hunters,² suggesting again an association of a captured soul with the fertility of the crop. Herodotus³ and, I think, Strabo, speak of head-hunters somewhere to the east of Asia Minor, where phallic worship was, of course, well known, and there is in the British Museum a bas-relief from Nineveh depicting a battle between Assurbanipal and Teumman, king of Elam, c. 668-626 B.C., in which the Assyrians are depicted as cutting off and carrying away the heads of their enemies. For authentic soul-figures in the west one must, perhaps, go to Egypt, and *bona-fide* head-hunting is found in Nigeria, where it is also sometimes regarded as a qualification for marriage.⁴ In Europe head-hunting still survives in the Balkans, and while menhirs and dolmens and various traces of phallic worship are found across Europe as far as the west coast of Ireland, traces of head-hunting seem also to have survived in the British Isles till a comparatively late date.⁵ Once the Fitzgeralds, I think, collected the heads of the slain on a Leinster battlefield, and Strabo accuses us of one form of cannibalism, while a Martinmas pig is still killed in Ireland and blood sprinkled in the fields to ensure a good harvest by "spilling of blood,"⁶ and the Moss troopers of the Scottish marches used to bring back heads at their saddle-bows and stick them up in the halls of their castles while they celebrated in feast the success of their raid.⁷ It is stated also that murderers in Prussia and South Italy eat part of their victim to conciliate the ghost or its relatives.⁸

We can only speculate as to whether or not carved and anthropomorphic menhirs were intended as soul-figures, but certainly the erection of menhirs, and probably the practice of head-hunting,⁹ date from neolithic times, while phallic worship and the separate disposal of the head may even take us back to a palæolithic stage of human development.¹⁰ In which case the head-hunters' theory of the cycle of life has at least the support of a hoary antiquity.

¹ Roy, *The Mundas and their Country*, pp. 465-6.

² Robertson "Kafiristan and its People," *Journ. Anthropol. Inst.*, xxvii, p. 81.

³ *ibid.*, 102 *seqq.*

⁴ Trounstein, *Tribes of Head-Hunters of Nigeria*, pp. 113, 179, 180, 232.

⁵ Professor Elliot Smith tells me that it was practised in Roman Gaul, and that an article was published by M. Solomon Reinach to this effect in the *Revue Celtique* of 1913, but I have not yet had an opportunity of consulting it.

⁶ T. J. Westropp in *Folk-Lore*, xxxiv, p. 235.

⁷ Gomme, *Ethnology in Folk-Lore*.

⁸ Trounstein, *op. cit.*, p. 183.

⁹ Burkitt, *Our Early Ancestors*, p. 101.

¹⁰ As at Oinet—Burkitt, *op. cit.*, p. 21; Macalister, *T. et Book of European Archaeology*, p. 541.



FIG. 1.—MENHIR AT INTUMA, KACHHA
NAGA (LYENGMAI) COUNTRY
(SEE PAGE 400.)



FIG. 2.—CARVINGS ON ROCK ADJOINING PHALLIC MENHIR, REPRESENTING THE MAN FOR WHOM IT WAS ERECTED AND HIS CHILDREN BELOW, A TALLY, PERHAPS OF BASKETS OF RICE; ABOVE, A TIGER AND BOAR KILLED BY HIM; AND AT TOP A RAINBOW. THE CIRCLES WERE DOUBTFULLY SUGGESTED TO REPRESENT THE GREAT SNAKE, BELOW WHICH ARE HEADS OF DECAPITATED ENEMIES.



FIG. 3.—ANGAMI SOUL-FIGURE FROM TOFIMA, WHERE THEY ARE ALWAYS MADE WITH SPECIALLY LARGE NOSES. (SEE PAGE 400.)



FIG. 2.—SOUL-FIGURES OF ANGEANG, SHOWING HORNS TO KEEP THE SKULL ON THE HEAD WHILE THE SOUL IS IN TRANSIT FROM THE SKULL TO THE FIGURE. (SEE PAGE 401.)



FIG. 3.—SOUL-FIGURES OF ANGEANG, USED FOR WARRIORS DECAPITATED BY THE ENEMY. "HORNS" ARE OF NO PURPOSE SINCE THE SKULL IS UNOBTAINABLE.



FIG. 1.—KONYAK SOUL-FIGURES IN MOURNING-HOUSE NEAR CORPSE EXPOSED ON PLATFORM. (SEE PAGE 401.)

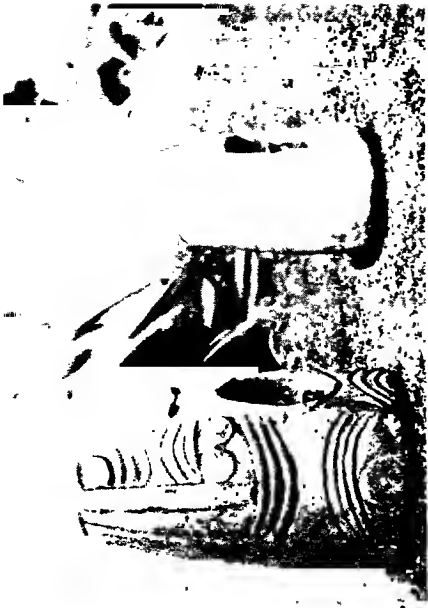


FIG. 2.—MODELS OF STONE CISTS USED BY WARCHING VILLAGE FOR SKULLS OF THEIR DEAD. THESE ARE MALE CISTS; FEMALE CISTS TAKE A DIFFERENT FORM (SEE PAGES 401-2.)



FIG. 3.—URNS CONTAINING THE HEAD OF THE DECEASED AND FUNERAL OFFERINGS IN MON VILLAGE (KONYAK TRIBE). EACH URN IS COVERED WITH A SILK CLOTH SPREAD ON IT IS FOR THE DECEASED'S SOUL TO SIT ON. (SEE PAGE 402.)



FIG. 1.—BASKET SOUL-FIGURES OF TOHU VILLAGE, SHOWING HEAD MADE HOLLOW TO RECEIVE THE SKULL. (SEE PAGE 401.)



FIG. 1. AN ENEMY HEAD AMONG THE ROOTS OF THE *mangkhung* IN PONGTHUNG. THE LAST REMAINING ENEMY HEAD IN THE LHOITA NAGA TRIBE. IN FORE GROUND THE SACRED *ahia*, BARTLEY STONES, ON WHICH THE PROSPERITY OF THE VILLAGE DEPENDS, AND WHICH ARE CARRIED WITH THE VILLAGERS IN ALL MIGRATIONS (SEE PAGE 401.)



FIG. 2. MOUND IN FRONT OF THE HOUSE OF THE CHIEF OF SANNEVE, SHOWING BARTLEYS AND ERECT MENHIRS.

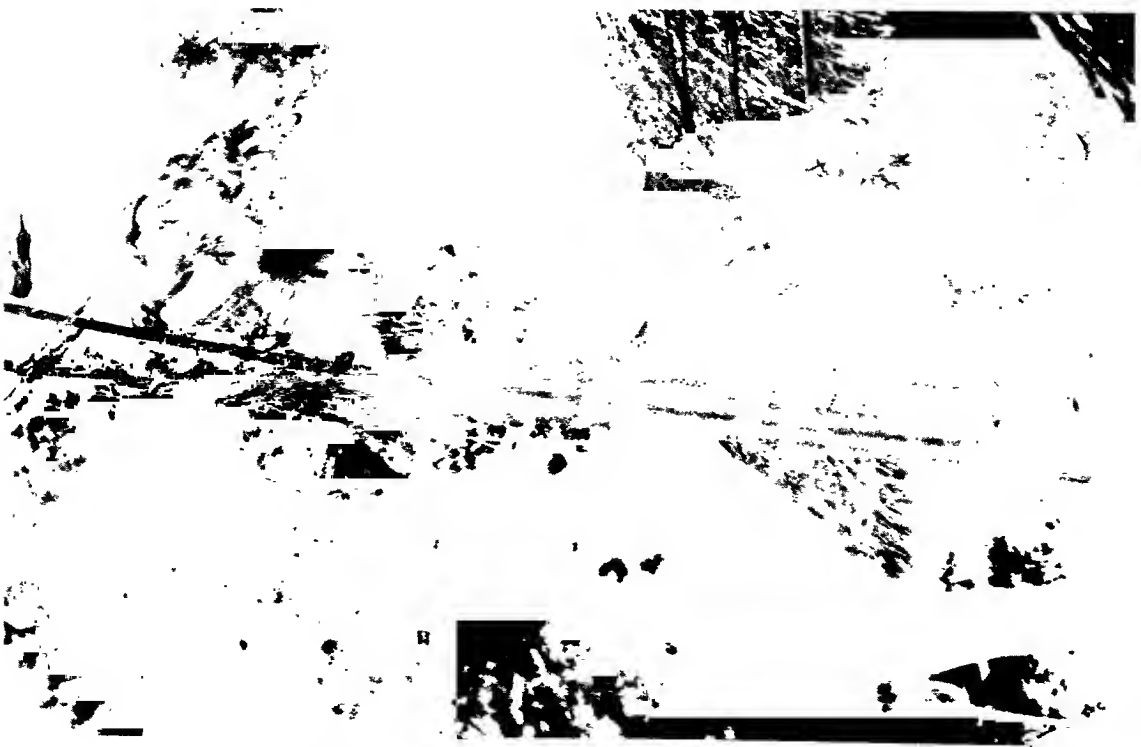


FIG. 3. ENEMY HEAD MOUNTED ON A BAMBOO TIED TO A MENHIR. THE LOWER JAW HAS BEEN REMOVED AND FASTENED SEPARATELY TO THE STONE. TOTOK VILLAGE, KONYAK TRIBE. (SEE PAGE 404.)

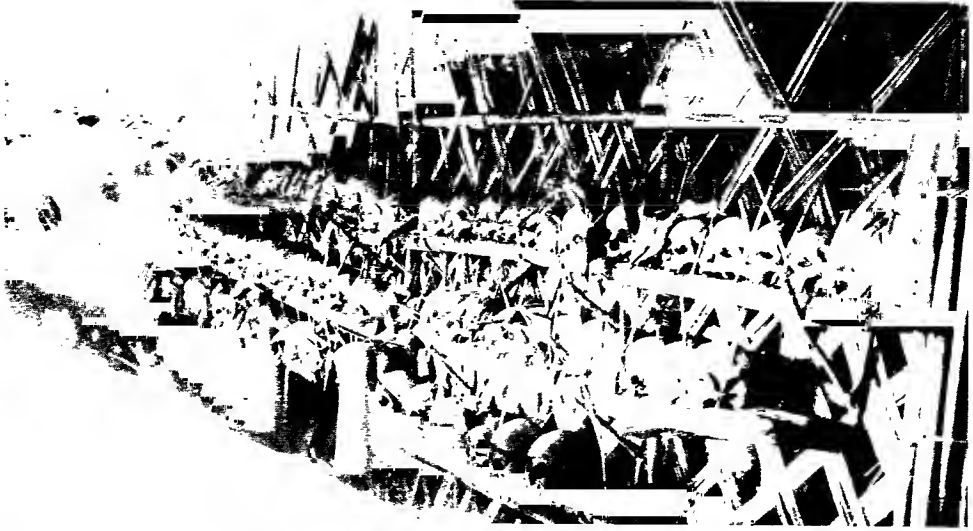


FIG. 1.—A KONYAK BACHELORS' HALL, CHĪ VILLAGE, SHOWING ENEMY SKULLS WITHOUT THE LOWER JAW. (SEE PAGE 404.)



FIG. 2.—ENEMY HEADS DECORATED WITH BUFFALO HORNS IN THE MORUNG AT SHAKCHI, KONYAK TRIBE. (SEE PAGE 404.)

THE BARI.¹

[WITH PLATES XLIII-XLVIII.]

By C. G. AND B. Z. SELIGMAN.

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INTRODUCTION.

THE territory of the Bari-speaking tribes lies to the south of the Dinka country embracing both banks of the river. On the eastern bank it constitutes a relatively narrow strip, its southern extreme marching with the Madi, while eastward from north to south it borders upon the Beir and the Lotuko. The Bari-speaking tribes of this, the eastern bank of the Nile are the Shir and the Bari proper, using the latter term in its restricted tribal sense. There are also Shir and Bari to the west

¹ The data upon which this paper is based were mainly collected during the winter of 1921-2. Unfortunately our stay in the Bari country was shorter than we had hoped; it is therefore the more necessary to emphasize the assistance we have received from Mr. J. H. Driberg, lately of the Uganda and Sudan Civil Services, who has some knowledge of the language, and from Mr. G. O. Whitehead of the C.M.S. school at Juba, who has read through our MS., inquired into a number of doubtful points, and made further investigations and valuable additions. We would also acknowledge the assistance derived from an MS., compiled by Mr. Ernest Haddon of the Uganda Civil Service, formerly Assistant District Commissioner at Gondokoro, and it is to this manuscript, composed some twenty years ago, that we refer in our paper as 'the Haddon MS.' Our stay in the Bari country and our work there was in every way facilitated by Mr. V. R. Woodland, then Governor of Monzolla Province, and by Major R. G. C. Brock, while our most grateful thanks are due to Mr. J. W. Crowfoot (Director of Education, and Principal of Gordon College) for his unfailing sympathy and support, and for permitting Mr. S. Hillelson to accompany us as assistant and interpreter, without whose constant help our work would have presented far greater difficulties than it did. In this country the working up and publication of our material has been greatly facilitated by a grant made by the Trustees of the Laura Spelman Rockefeller Fund, whom we desire to thank for their generous assistance.

As to transliteration: we have to some extent been guided by the orthography put forward by the International Institute of African Languages and Cultures, but in order

of the Nile, and to the south of these the Kuku, while other Bari-speaking peoples lying west of these riverain tribes include from north to south the Mandari, the Nyangwara, the Fajelu, the Nyefu, and the Kakwa.

Whether the cradle of the Bari-speaking tribes was within the present area of distribution is quite uncertain. Culturally they are unlike their neighbours the Dinka, nor are their affinities, except physically, and then only in the broadest sense, to other tribes to the west of the Nile at all clear. According to a native legend reported by Ernest Haddon, the Bari came into the Nile valley as the result of the fission of an old Beri-Bari tribe. Later there were further divisions, as a result of which the Mandari, Shir, Nyeia, and Fajelu tribes were formed.¹ These, together with the Nyangwara, Kuku, and Kakwa, and perhaps the Ligi, correspond fairly closely with the group said by Emin Pasha to form a sharply defined whole, distinguished from their neighbours in language and having many common customs.² Emin does not mention the Kuku or the Nyefu, and includes a people he calls Marshia, who "are few in number . . . resemble the Bari type [and] are skilful and industrious-smiths."³ Thus the country over which Bari and its dialects are spoken extends over an area approaching a rectangle some 160 miles in length, extending southwards from latitude 6° 5', and having a maximum breadth of some 90 miles.

The Marshia, according to Mr. Whitehead, may be regarded as a larger group than usual of professional smiths, who are also reputed to be darker than the ordinary Bari: a fact ascribed by the Bari to the nature of their industry. Marshia is probably an Arabized form of a native word, comparable to the use of Bari for Bari. The correct form is Marsak which should have a singular Marsanit. They are remarkable in the eyes of the ordinary Bari as being particularly dark in colour.

The physical characters of the Bari proper, and of other Bari-speaking tribes of the west bank, as far as we know them, have been discussed at length elsewhere,⁴ so that here only a brief summary need be given. Considering first the Bari of the eastern bank, these are dark-skinned dolichocephals, their skin being as dark as

to keep printing as simple as possible we have avoided special signs to represent peculiar Bari sounds, and so have not introduced non-Roman symbols. The bilabial *p* has been rendered by *p*, the long indeterminate vowel (*u* in *pu*) by *u*, and the *au* sound in *saupe* by *o*, but we have omitted the glottal stop which is present in two words we frequently use, *dapu* and *kau*, which correctly should be *'dapu* and *'kau*. Nor have we generally sought to distinguish *s* from *sh*, because, although in certain words we heard *sh*, Mr. Whitehead informs us that the two sounds are largely interchangeable.

Although this paper is not a comparative study, we have, when appropriate, introduced a few references to other tribes, mostly Bari-speaking.

¹ Ernest B. Haddon, "System of Chieftainship among the Bari of Uganda," *Journal of the African Society*, p. 468, vol. x, 1911.

² *Emin Pasha in Central Africa*, p. 369.

³ *Op. cit.*, p. 370.

⁴ C. G. Seligman, "Some Little-known Tribes of the Southern Sudan," *J.R.A.I.*, vol. lv, 1925.

that of the Dinka and their cephalic index (19) averaging 73.5. Their average stature is 1.72 m., but men taller than this are not uncommon, and the number of the "very tall" is not inconsiderable. Thus in the small series measured there were two men of 1.89 m. and 1.90 m., respectively.

The Bari-speaking tribes of the west bank are mesaticephals, and with the exception of the Mandari, who border on the Dinka and have an average stature (21) of 1.75 m., are considerably shorter than the true Bari of the eastern bank.

In nasal index, as far as our present knowledge goes, there does not appear to be any significant difference between that of the true Bari of the east bank and the figures for the Bari-speaking tribes of the western bank.

The Bari dialects belong to the Bari-Masai sub-group of the Niloto-Hamitic group, its fellows within its sub-group being Masai, Suk, Karamojo, and Turkana.¹ It will be noted that all these lie to the east, while to the above list may now be added the immediate eastern neighbours of the Bari, Lotuko, with its dialects such as Lokoiva. Further, as pointed out by G. W. Murray, the languages of the Bari-Masai sub-group appear to have been affected by an influence which can only be called Hamitic (though naturally not identifiable with any living Hamitic language(s)), while he and others have thought largely on the strength of the vocabularies—that before permeation by this foreign influence the languages of the Bari-Masai sub-group must have resembled such Niloto-Sudanic languages as those of the Dinka and Shilluk.² It will be noted that this view fits remarkably well with the suggestion, based on physical and cultural data, briefly set forth on p. 412.

Turning now to the cultural characters of the Bari-speaking tribes, there are two which from the point of view of inter-tribal relationship seem to be of peculiar importance as betokening a western influence. These are:

- (1) The existence of ancestor figures, such as that figured on Pl. XLIII.
- (2) The use of rainstones.

Ancestor figures have been described by Junker,³ who gives a very rough illustration, and by Mounteney-Jephson.⁴ Moreover, there are several specimens—all very rough—so labelled in the Vienna Museum, some of which have already

¹ D. Westermann, *The Shilluk People*, where the author quotes Bernhard Struck to this effect, including in the sub-group the Naisi, Elumu, and Teso. (Actually the Naisi (Bairishai) are Bantu-speaking, and Elumu possibly refers either to the Teso or Sabo.)

² G. W. Murray, *An Introduction to the Languages of East Africa*, Intro., p. xi, constituting vol. iv, 1923, of *Harvard African Studies*, Oxford, 1923. Mr. Whithead has worked out the percentage of words which are common to Bari and the dialects, vocabularies of which are given in Johnston's *Uganda*, i.e. Masai, Turkana, Lokoiva, Nandi, and Karamojo and South Karamojo taken together. For this small vocabulary of 169 words, the figures are: Lotuko 39 per cent., Masai 26 per cent., Turkana 23 per cent., Karamojo 16 per cent., and Nandi 12 per cent.

³ W. Junker, *Travels in Africa* (1896), pp. 233, 496.

⁴ A. G. Mounteney-Jephson, *The Elumu People and the Rebellion of the Esopo*, 1890, pp. 140, 141.

been published,¹ and one much more carefully worked in the Miani collection (Venice) which is the subject of Pl. XLIII. Three of the Vienna specimens were presented by Emin Pasha, others (in 1882) by Martin Hansal, the Austrian Consul in Khartam, or were brought home by the "Novara," an Austrian exploring vessel, and taken over from the Museum in Miramare in 1883.² It seems, then, that there should be no doubt as to the origin of these figures, nevertheless inquiries made at different times independently by Mr. Ernest Haddon, the Venerable Archdeacon Shaw, and ourselves, failed to find any trace of their existence among the Shir or the Bari of the eastern bank, so that it would appear that these specimens are derived from the western bank, not from the Bari proper, but from one of the Bari-speaking tribes. This suggestion is supported by the fact that wooden figures are common among the Zandeh, and occur among other mesaticephalic tribes of the north-flowing tributaries of the Bahr el-Ghazal, e.g. there is one from the Dor tribe in the British Museum, and other specimens are figured by Schweinfurth.³

As for rainstones, these are in use among all Bari-speaking tribes of whose magico-religious practices we have any knowledge, whether on the right or left bank of the river. They are also found among Lokoïya, Lango (of the Sudan), Acholi, Madi, and Lugware. They are not found among the Dinka to the north or among the tribes of the Bari-Masai linguistic sub-group living well to the east, such as the Masai, Nandi, or Akamba. On the other hand, rainstones are found among the hill Nuba of Southern Kordofan, who are for the most part mesaticephalic. Broadly speaking, then, rainstones may be considered to be associated with an area to the west of the Nile inhabited by mesaticephalic or predominantly mesaticephalic tribes, and we feel justified in putting forward the suggestion that the Bari-speaking tribes have been submitted to an in-coming western influence which, although not so strong as to alter the affinities of their language, was yet weighty enough to influence them profoundly in their cultural life, and also, as we believe, in their physical characters.⁴

The Bari country to the east of the Nile, of which alone we have any first-hand knowledge, consists of a flat or gently undulating plain some 1,700 feet above sea-level, intersected by shallow ravines—often with sandy bottoms—in which water-

¹ C. G. Seligman, 'Some Little-known Tribes of the Southern Sudan,' *J.R.A.I.*, vol. iv, 1925.

² My thanks are due to Dr. E. E. Evans-Pritchard for investigating the provenance of the Vienna figures and procuring photographs, and to Dr. Raymond Firth, as well as to the authorities at Venice, for the photographs reproduced as Pl. XLIII.

³ *Artes Africarum* (Leipzig, 1875), Pl. VIII. On the other hand, the late Major Stigand (*Equatoria* (1923), p. 44) writes of the "hanging up in the huts (Bari) of penates, in the shape of roughly carved wooden figures, representing deceased parents." It is, however, worth remembering that Stigand did not live to revise his MS. for the press.

⁴ This process is discussed at length elsewhere (*J.R.A.I.*, 1925) and is not limited to the Bari-speaking tribes; it is indeed particularly evident in the case of the Acholi, since our knowledge of the Shilluk offers reliable comparative data.

holes are dug during the dry season, yielding a supply so copious that, although the watering of large herds of cattle may require forethought, there is not generally, we believe, any real scarcity of water. The plain is broken here and there by outcrops of rocks, for the most part volcanic, the two chief masses being Belinian and Shindirru,¹ both important from the sociological standpoint as being the homes of lines of rain-makers, and the sites of rain-making ceremonies (*infra*, pp. 462-71). Belinian is also an important iron-working site: whether this applies to Shindirru and the smaller hills, which lie in a line with it north and south, we cannot say. The country as we saw it constituted a bushy parkland, dry and even arid, with grassy areas, often swampy near the river, and showing strips of dense growth along the beds of the torrents. The preponderance of grass land round the villages, with the existence of a limited number of really old trees to which religious significance is attached, suggests that the present conditions of a considerable part of the clearer country may be due to human agency. It is indeed important to remember the vast difference between the Bari country of to-day and that of the early 'seventies, a matter emphasized in the Haddon MS—written, be it remembered, about twenty years ago—in the following words:—

"The Bari country of to-day would be a sad sight for those early travellers who saw it in the 'sixties and 'seventies . . . and I think I can say with some degree of accuracy that, reading these old authors and comparing their descriptions with the villages left to-day, there may be only one family where there were six or eight forty years ago. The cattle have also gone—raided and eaten up by bands of Arabs and dervishes. Nowadays the bush has encroached on the settlements. The natives of Gondokoro tell me that in the old days elephants and buffalo were never seen near the station, it was all under cultivation as far as one could see. With these animals has come the tsetse fly (*Glossina morsitans*) and a disease amongst the cattle which I think is the Ngana carried by this fly."

It follows that the Bari at the present time are to be regarded as presenting a transitional stage from pastoral to agricultural society, and we cannot do better than quote here a native account of the transition given us by Mr. Whitehead:—

"Long ago the cattle of the Bari were very many. They did not stay at home, they stayed in the *kayoni*, and all the *tutor* were there. . . Durra also there was very little of: they cultivated little durra, because they drank milk. There was not much *adiba* either (a mixture of meat and vegetables). They

¹ We have not ourselves visited Shindirru. Mr. Whitehead describes the hill itself as insignificant, though there are fine views all round. "On the east you look across the valley of the Kit to the Lokoya Hills round Luliha, about 15 miles away, and you can catch sight of Lyria beyond. To the south there is Gondokoro. . . south-west you can see Kaji-Kaji, the Nile lying to the west."

cultivated beans and simsim. All the *t-tom* drank milk. The old men who stayed at home eat that durra which was a little cultivated. And those girls who were still young went to beat milk into butter and bring it home so that their mothers and fathers might dunk it. Thus the people of those days were very rich . . . Also the old men, who were well known, married three wives and two, but many people they married one because in that time they feared to marry many wives, because it was said that women when many quarrelled, and their husband very soon died. So the Bari of those days they married one wife. Also the people of that time did not marry when they were small ever . . . But in these times people marry when they are young, and people wish to marry many wives."

The *kurumi* no longer exists: it was the big wet-season cattle enclosure built in the open country, and so large that the cattle of a number of villages, which joined to build it, could be herded within it at night.¹

Another difficulty with which the Bari have to contend is the relatively large foreign settlement at Mongalla and the strict administration of the White Man's law, especially applied—as the Bari sees it—to the condonation of witchcraft and the stern repression of his natural reaction thereto, *i.e.* the killing of the magician, as exemplified by the incident we relate on p. 435.

THE HOMESTEAD AND DAILY LIFE.

A Bari "village," using the term to denote no more than a settled area more or less remote from other settled areas, is commonly spread over a considerable extent of ground, since each housefather lives with his wives and unmarried children in a homestead, usually roughly fenced, at some little distance from the homesteads of his fellows. The general character of Bari houses and homesteads will be gathered from the photographs reproduced on Pl. XLIV. But besides this arrangement there exist on both banks of the river larger and more compact groups of habitations in which the houses and granaries stand much closer together and are not fenced off from one another, the whole corresponding fairly well with the usual

¹ Mr. Whitehead writes of the *kurumi* as follows:—"During the wet season the Bari cattle were driven inland to places where the grass was good. At one time the Bari villages on the west bank of the Nile between Regat and the River Lari used to take their herds all the way to the River Ko'da. There a *kurumi*, or large cattle enclosure, was built of posts of ebony wood and thorns. The *t-tom* or young men of eighteen to thirty-five years of age remained with the cattle, while the married men, women, and children stayed at home, and the young girls journeyed backwards and forwards carrying milk. The warriors herded the cattle by day, and danced and sang songs by night. Their food during this time was for the most part milk, blood drawn from the necks of the cow and mixed with milk, and a little durra." It may be suggested that in former days that portion of the life of the Bari which had reference to their cattle more closely resembled that of the riverain Dinka (*e.g.* the Bor) than is commonly recognized.

English meaning of "village." Such villages may be surrounded by a substantial stockade.¹

Around each house is an area overlaid with a mixture of mud and cow-dung, giving a tough, smooth surface, the portion immediately in front of the door of a hut being commonly tessellated with potsherds broken so as to give a hard mosaic surface. Within this compound grain is dried, and the housewife goes about her daily activities, though the grain is perhaps more commonly ground in the shade of the granary or even under it. Here, too, food is cooked and eaten, at any rate during the dry season. The granaries and perhaps a goat-house stand further from the dwelling-house, but within the hunting enclosure.

The following account taken from the Haddon MS. of the daily life of the Bari will give some idea of the background of the more special (and to us the more ceremonial) aspects of life which will be described later :-

"During the rainy season the people sleep inside their huts, but in the dry season they more often sleep outside on their mats, covered over by another mat. The children of both sexes when quite young sleep in their parents' huts, but when a little older they sleep in the goat-houses with the goats. When approaching puberty the boys often build a hut, several of them living together, and certainly after they have had their teeth knocked out they usually each have their own house. If their father is dead, however, they usually live in the hut with their mother up to the time they marry. I have seen girls nearing puberty living in a goat-house.

"In the early morning, half an hour before sunrise, the village is awake, and the cries of the animals and children rise in a mournful wail. The children are bundled out shivering into the cold air, and lazy figures emerge from the huts huddled up in whatever garments they possess. If it is the season to cultivate and rain has fallen, the men and boys soon seize their hoes and go off to till the ground, or the women with the babies to weed the gardens or gather the ripened grain. When the grain is nearly ripening, in the early dawn, the men, women, and children—whichever can be spared—are already in the fields to drive away the birds from the crops, perched up on platforms, with a few stones and sometimes a stick, uttering piercing cries and shouts, loud, clear and lusty in the early morning, somnolent in the early afternoon, when all nature sleeps, husky but hopeful as the shadows of night begin to fall. Tiny children, old men, and aged crones all are pressed into this all-important duty.

"But to return. When the sun is up the goats and sheep are let out of their houses, tied up to pegs and milked—an indescribable scene: frisky kids

¹ Baker (*Ismailia* (1879), pp. 132, 133) writes of stockades of great strength apparently round the cattle enclosures, and Housal mentions fences of *Euphorbia candolabrum* v. *Die Bari-Neger*, "Mitt. der Geogr. Gesell. in Wien" (1876), p. 295.

getting lost and found, children struggling to milk and to drive away assertive young animals, and a chaos of sound. As the sun gets higher the goats are marshalled to their grazing-grounds by young boys, and sometimes girls, and about this time the cattle go out to graze accompanied by the older boys. Nowadays quite young boys can herd cattle, for there is no fear of the unsuspecting herd being raided by an adjacent tribe or hostile clan.

"The women meanwhile are sweeping in front of the houses; many have already brought the water from the water-hole or stream . . . The old men—the elders—appear to be waking up, and move out of the village to sit under the village tree, contemplative, or else they have already wandered off to help, or advise in the cultivation . . . But there is always an old man lazing under the tree or in the shade of a grain-store.

"About noon the cattle come back and the cows are milked, and the people return from their various employments to eat the midday meal which is at any time from twelve to three o'clock . . . The women bring firewood and water, besides weeding the gardens, gathering and winnowing the grain, and, of course, they cook the food, make beer, and perform the ordinary household duties.

"The immediate neighbourhood of a village is to be avoided: both sexes defecate just outside the village. The manure from the goat-houses is often collected in heaps inside the village or is thrown on to a heap close to one or more of the gateways.

"About 5.30 all return, the cattle are put in their zanceba, and the goats and sheep shut up in their houses. A meal takes place some time between sunset and 10 o'clock: this is the chief meal of the day, and more usually is served at 7.30. The children soon after settle down to sleep, whilst their elders sit and talk round a fire which is usually lit outside the houses.

"In serving the food, the men, women and children all eat apart, each in their own little group. After they have eaten, any food left over is either given to the domestic slave— if the family is rich enough to possess one—or is saved, either for a future occasion or given to the children, who it is said can always eat more."

In the past, as we have already suggested, cattle played a most important part in the life of the Bari, a part the magnitude of which can scarcely be appreciated at the present day, and, while it is difficult to find an absolutely equivalent word or phrase, "loving reverence" is probably a fairly adequate rendering of the Bari feeling for their cattle. Among the Dinka it is still no exaggeration to speak of the attitude of a youth to his favourite bull as that to which psychologists apply the term "identification," and it seems probable that in the past this was true of the Bari. It was the custom for each young warrior to play with his bull—given him by his father on his entering his age-grade—showing off its points, and publicly to

vaunt its name and quality, and for this boasting there is a special word *polo*. Indeed, Mr. Whitehead informs us that the roaring of a bull on a stranger's grazing-ground, or the encouragement of a bull to bellow in challenge, led to inter-village fights, at any rate in stories and presumably in actual life, a couple of generations ago.

The Bari do not train the horns of their cattle forward and backward, so that an animal has one horn pointing in each direction, as the Dinka do, but it is worth noting that this is done in at least one tribe of the Bari-Masai linguistic group.¹

THE CLANS.

The Bari are divided into a number of exogamous clans with male descent, called *duget* (pl. *dugetsi*): there are certain prohibitions, for the most part connected with animals or food, which each clan should observe. There are no clan marks for men or women, but the ears of sheep and goats are cut or notched conventionally so as to indicate the clan of their owner. The food avoidances of the Bari are far from simple and would require a long time to work out, and although it is unlikely that all are clan prohibitions, some certainly are. We are indebted to Mr. Driberg and Mr. Whitehead for many of the names in the following list of clans which must not be regarded as complete, but which is printed in the hope that it may be of use to subsequent investigators: Panigilo. Miini. Bekat. Nyori. Bonuk. Dun. Kabidu. Brajin. Lodare. Kamyak. Pöli. Lumbari. Gubatulu. Karyak. Logare. Kim. Kanan. Rito. Sera. Pöran. Lobajoka. Gela. Moije. Kwersak. Poko. Reli. Karuma. Sali. Kuli. Miino. Dölo. Rongat. Lokuamiro. Jam. Tiali. Dakgeleñ. and Le.

The Dun clan refuse to eat hartebeeste and giraffe: no reason is given and it is said that the younger generation pay little attention to this prohibition.

The Kamyak clan refuse to hunt or kill elephant, whom they call brothers, nor will elephants damage Kamyak cultivation. The lion is also called a brother and may not be killed: if a lion takes a Kamyak cow that lion is almost certain to die shortly for not observing the clan prohibition.

The Rito clan refuse to kill or eat elephant and pig, lest they be afflicted with disease.

The Lokuamiro clan do not kill the leopard, and call it brother, and no leopard will touch a clansman or his property.

¹ The reference is to the Suk. "An ox with one horn pointing forwards and the other backwards, called *kumar*, is an object of envy and admiration to all . . . Every fighting-man should have his *kumar*; those who do not possess one are taunted. When preparing to start on a raiding expedition, the *kumar-tu* are collected, bedecked with ostrich feathers, and sent to the river where the warriors collect. These latter dance round them and flap their hands at them, and kneeling on one knee they hold up their shields in an attitude of defence and brandish their spears at them, while uttering a weird war-cry, which is supposed to excite in the faint-hearted the desire of battle. A captured *kumar* is a coveted prize and is slaughtered and eaten with much ceremony" (M. W. H. Beech, *The Suk, their Language and Folklore*, Oxford, 1911, pp. 8, 9).

The Nyori clan will not kill a scorpion: in addition, part of the clan will not kill or eat the rhinoceros. Further particulars are given in the Haddon MS. :—

“ I have a note that in the Nyori clan, for instance, Kenyi cannot eat the black rhinoceros, whilst Tombe Musa, another great chief in the clan, cannot kill a scorpion and can eat black rhinoceros. Yet should Tombe Musa be in trouble he goes to Kenyi to obtain advice and help, as Kenyi is head of the Nyori clan. The scorpion is regarded by the members of Tombe's branch of the Nyori clan with great reverence, they never kill it and it never stings them, or if it does it is to foretell the death of a near relation.”

Some clans, *e.g.* Duñ, have a tree which may not be cut down or used as fuel.

There is a clan which in our notes we call Fali, perhaps the same as Mr. Driberg's Pöli, the members of which should drink milk sparingly, although they have plenty of cows and make and eat butter freely.

The children of clan Lobajoka may not touch the ground with their feet until after a ceremony at which their lips are anointed with milk.

Mr. Whitehead gives the following examples of special rules observed by women of particular clans in connection with childbirth :—

“ There is another people, their name is Le. Their clan is Le. When a child of theirs is born, the mother does not touch the ground with her hand at all, does not look up at all, the mother does not drink *durru widadat* (a certain stage in the preparation of native beer), does not drink curdled milk at all, does not taste salt at all, until she comes out of the house (after childbirth). And then she begins to eat salt and all things which she refused to eat before.”

The clan Lodara have a story of how a dog helped his master to find fire when he was lost in the forest, and his wife who was travelling with him had just given birth to a child.

“ And forthwith the man returned home: and he bade his children saying: ‘ All you Lodara, when one of your people has born a child, and comes forth from her hut, let the dog drink *bolot* to his heart's content, *bolot* mixed with milk.’ So when a woman of the Lodara has born a child, the dog is taken to drink *bolot* and milk.”

As to the origin and antiquity of the clans, it seems that divisions within some of the clans—which are in effect sub-clans, each under a powerful headman or chief—have arisen during the last few generations and probably within the last hundred years, *e.g.* within the Nyori as mentioned above, and also within the Bekat.¹

¹ Mr. Whitehead notes the following subdivisions of Bekat and Duñ:—

“ There are the Bekat Lomat, the Bekat Monabur, and the Bekat Malasuk. They may intermarry. So with the Duñ: they are divided into Duñ proper, Duñkoyó, Duñkaliri, and Duñkomiti. The last two are said to have *nyawundya* (taste) one the *liritat* (a bush), the other the *komiti* (a fish).”

Of the age of the named clans nothing is known : here, perhaps, intensive geographical study might be useful. There is a legend in the Haddon MS. which is interesting from the point of view of exogamy : —

“ A long time ago the Bari married indiscriminately within the clan, but it so happened that a brother and sister married, and then their children married, and they were unhealthy. The chiefs said that this sickness was due to the intermarriage and ordered two bulls to be brought, one from each house : the bulls were cut lengthwise, each in half, including the tongue and tail, and each party ate half of their own and half of the other ox, and thus was the tribe divided.”

Commenting upon this, Mr. Whitehead points out that if a man marries a woman of whose clan and origin he is ignorant and she then falls sick, it is assumed that she is probably a distant member of his own clan, and he has then to perform a ceremony similar to that just related. “ If you marry a person who is like a sister’s daughter from far away, but you do not know her, and later she becomes ill, then you bring a sheep and a kid : and that sheep is cut lengthways. Therefore it is called *tokuran*.”

It is suggested in the Haddon MS. that the origin of the clan prohibition is due to the illness of an ancestor after partaking of the particular kind of food now taboo. The result of our inquiries in this direction was negative until we put the matter as a leading question, when it was strongly approved, yet we doubt whether the belief is generally held, and even if it be, it would not explain the reciprocal relationship of clansman and clan animal.

Taking into consideration the occurrence of aberrant forms of totemism in the neighbouring Lotuko-speaking tribes with reincarnation after death in the clan animal, and just such relationship between the man and his animal as is exhibited between the members of the Kamyak clan and their animal, it may be suspected that the Bari practices indicate the former existence of totemism, but by themselves they can scarcely be taken to show this, while neither Mr. Driberg’s inquiries nor our own yielded any hint of animal reincarnation beliefs among the Bari. Yet the doubtful snake-cult referred to on p. 462 should not be forgotten.

It is perhaps correct to say that Bekat is the most important of the clans, since all rain-makers of any importance belong to it, though theoretically rain-makers might belong to other clans.

Mr. Whitehead informs us that certain clans do not intermarry, the example he quotes being Duñ and Lumbari : this particular instance is explained by a story of the Shylock type, in which the Lumbari man refuses all reasonable compensation for a spear lost by the Duñtio, who later insists on the Lumbaritio cutting open his child in order to restore immediately a bead belonging to Duñtio swallowed by the little girl.

STATUS-NAMES AND AGE-CLASSES.

The following terms (all given in their plural forms) are used roughly to indicate states of maturity :—

- Lubulyat* . . . Boys before their teeth are removed. Mr. Whitehead indicates that these are boys who have not yet entered an age-class or *ber*: they are described as "*to den lubya*," "[those who] don't know words," "are ignorant," for the Bari seem to judge maturity by stages of ignorance or knowledge. People will excuse their ignorance of tribal things on the ground that they are young: and the meaning of the various age-class names has reference to their growth in knowledge, good behaviour, self-control and so forth.
- Kadiši* . . . Girls before puberty, roughly until marriage.
- Kalipinok* . . . Boys after their teeth have been knocked out. Mr. Whitehead points out that this word refers more to service than to age. It means, roughly, servants—"those who come out to serve." They would act as servants to chiefs and elders.
- Teton* . . . The unmarried warriors.
- Temejik* . . . Men too old for war, the elders of the tribe.
- Munduugu* . . . Old men.

At feasts the *temejik* may drink as much beer as they like, even if they leave none for the *teton*. Of meals, the latter generally get the head and limbs: the *temejik* the breast, haunch, and viscera: the *kalipinok* get little meat and no beer.

Girls and women do not milk the cows: whether they ever milk sheep or goats we cannot say, but ordinarily we think they do not. We could not hear of any special vessel being employed to receive the milk, and it was said that there was no objection to women drinking milk during their menstrual periods.

To Mr. Whitehead belongs the credit of the discovery of age-classes among the Bari, our own attempt having failed to produce definite evidence :—

"The duties of the *ber*, age-mates (singular *ber to*), may be summed up as mutual aid and support. When a man goes to visit the girl he is going to marry he takes his *ber* with him. After marriage, when he visits his mother-in-law he is accompanied by his *ber*. A *ber to* may contribute a goat or sheep to the marriage price his age-mate is raising. Should a man go to reclaim his cattle his *ber* would help him to drive them away, at least in the old days. In illness

the *ber tio* will help, bring the *bant*, and mourn at death. The age-class is obviously an organization for fighting, feasting (evidence of names), dancing probably, and match-making."

Mr. Whitehead has sent us the names of the age-grades of Belinian, and of Nerjua, a large village on the west bank near Juba :—

Belinian	Nerjua.
Amoroti or Swodo.	Na'duga.
Losiwa	Namoyu.
Kalau.	Na'dumba.
Luberi.	Jurienga.
Loñure	Naruja.
Amuna.	Losiwa.
Merkolon.	Luberi.
Limojon.	Loñore.
Bonshua.	Gole.
Amukonyen.	Jujuk.
Shuroko.	
Akutr.	

It will be noted that though the numbers are approximately equal they are in both cases high—a good deal higher than, *e.g.* the age-classes of the Lotuko.¹ This, as well as the difficulty, which in our experience is general, of obtaining details concerning age-classes, so largely a fighting organization, suggests the possibility that there may be some confusion in the names given to the classes, *e.g.* more or less contemporary classes from neighbouring groups may have been treated as serial in one group. On the other hand, assuming a four-year period between for each age-class the number is not excessive.

Mr. Whitehead adds :—

"(1) Na'dumba, Jurienga, and Losiwa all refer in some way to fighting qualities or quarrelsomeness. Losiwa is definitely connected with *sawa*, wild bees who buzz fiercely, while (2) Gole and Jujuk are names of parts of the animals that are cut up for feasts. *Gole* is the hind-quarter (?) and *jujuk* is the breast."

We would point out that the quality denoted by Losiwa fits well with the age and temperament of a young warrior or junior age-class as at Belinian. If it is accurately placed at Nerjua it should presumably refer to some specially plucky

¹ C. G. and B. Z. Seligman, "The Social Organization of the Lotuko," *Sudan Notes and Records*, vol. viii, 1925, pp. 16-1

or demonstrative action. Gole and Jujuk refer to the parts—both highly esteemed—set aside at feasts for these rather elderly classes.

The Bari are, or more correctly were, bowmen, for though they had spears they made comparatively little use of them: indeed, our informants said that the one reason why the Lokoïya with whom they used to fight (and to a limited extent intermarry) generally got the better of them was that the Lokoïya—not being bowmen, used to charge home with their spears, and so throw the Bari into confusion.

The Bari are expert iron-workers, and the neighbouring tribes—the Lokoïya and the Lotuko—both say that they learnt iron-working from the Bari who settled among them apparently not very long ago, perhaps not more than three to five generations, a date agreeing well with the conditions described for the Lango of Uganda by Mr. Driberg, who gave a vivid account of a time when spears were limited to those captured in battle, and the weapons in general were wooden club and long lashes of buffalo hide.¹

THE REGULATION OF PUBLIC LIFE.

The regulation of public life among the Bari is more complicated than that of any riverain tribe with which we are acquainted, and it is in this section of our work that the assistance rendered by Mr. Driberg and Mr. Whitehead has proved specially helpful. The former, besides verifying and enlarging many of our statements, discovered a number of new facts which were valuable as bringing into perspective the rather incoherent data submitted to him, while the knowledge of language possessed by the latter enabled him to fill many lacunæ and to solidify the whole structure of our paper.

It is possible to look at Bari society from two points of view, both, as it seems, constantly borne in mind by the Bari themselves. On the one hand, it may be divided into two numerically very unequal groups, viz. (1) those who “know water” (*i.e.* the process of rain-making), limited to the rain-maker and his assistants—these are called *kôr* (sing. *kôrtio*): (2) those who do not “know water,” called *bômuto* (sing. *bômuto*), comprising the rest of the tribe, whether chiefs, commoners, *i.e.* freemen, or slaves. The other division is into “freemen” (*lui*, sing. *luitot*) and slaves (*dapi*, sing. *dapiet*), with certain despised classes, such as smiths and fishermen, occupying a somewhat indeterminate position, so that while a chief, necessarily of the *lui*, might speak of a smith as a *dapiet*, the smiths themselves deny that they belong either to the *dapi* or *lui*, but claim that they stand apart from either class. As will be made clear later, both chiefs (rain-makers) and *dapi* are included in the *kôr* class, while all chiefs, whatever their quality, are necessarily *lui*.

J. H. Driberg, *The Lango*, p. 81.

Chiefs, *kimak* (sing. *matat*), are of four types :—

1. Rain-makers, *kimak to pion* (sing. *matat lo pion*), literally "chief of water" sometimes, but rarely, called *matat lo kuda*, "rain-chief." The rain-makers of Shindirru appear always to have been the most important men among the Bari, though it is possible that this statement may have to be qualified when more is discovered concerning the *mor* or *mar*.
2. Village chiefs, who, as Mr. Whitehead informs us, would probably be called *matat lo jar*, or *matat lo qoba*. Magara, to whom reference is made on pp. 426 and 436, and whose portrait is given on Pl. XLV, fig. 1, is properly one, but men of his age and ability would all be called *kimak*.
3. *Kimak komonykak*¹ (sing. *matat monyqkak*) concerned with the land (*kak*) and especially preparing it for crops, with functions of a magico-religious order.
4. *Mor* or *mar*, whose position at present is far from clear (p. 425): he appears to be a district chief, and his functions temporal rather than magico-religious.

The rain-maker is supreme in matters concerning rain, and, as Mr. Driberg informs us, has a "medicine man" (*buwat*) attached to him. The office is hereditary, the eldest son succeeding, but in default it passes to a sister's son. The greatest rain-makers belong to the Bekat clan, as apparently they "always" have, though, as Mr. Driberg points out, there are at present minor rain-makers in the Nyoni, Logura, and Dun clans. Indeed, he inclines to the view that originally each clan had its rain-maker, the greater success achieved by the Bekat rain-makers being due to geographical causes, *i.e.* the "homes" of this clan being the relatively high hills Belinian and Shindirru, with the result that most of the rain-makers of other clans have ceased to exist or at least to function. Mr. Whitehead informs us that the Belinian rain-makers are derived from Shindirru: the split took place three generations ago.

We gather from Mr. Whitehead that the rain-makers of Shindirru were more important than those of Belinian, the power of the former extending far west of the Nile, indeed he thinks it likely that the Nyangwara, Fajelu, Mandan, and Kakwa had no rain-makers of their own but depended upon Shindirru.

The following genealogy of the Shindirru rain-makers was given to Mr. Whitehead by Lako Shwaka, a *duput* of Pitia Lagar, the father of the present rain-maker, and goes back eight generations, though it may possibly omit some who have held

¹ The word *komonykak* is also applied in a general way, and always in this plural form, to old and important men, in some sense heads of a group, whether village chiefs or heads of families.

the position, *i.e.* brothers who have been rain-makers during a minority. Leju Lugar is the man mentioned in Mr. Spire's account (*infra*, pp. 468-70).



The rain-makers of Shindirru have always worn long hair, and the following account of their mode of travel in the old days gives some idea of their importance :—

“ In that time Pitia Yen ko Pion (ever with water ?) never walked on the ground. When he made a journey he was borne in a couch until his return home. All the great chiefs of the land of the Bari in the year (?) untied him bulls also [*i.e.* killed bulls for him]. And when Pitia died he left his son, his name was Lugar. Also when he journeyed he did not go on the ground: he was borne in a couch until his return. The great chiefs of the land of the Bari in the year (?) unloosed bulls and all the country of the Bari (did the same ?).”

Every clan has, or should have, one or more *monyekak*, literally “ father of the land.”¹ The title is hereditary, and the eldest son normally succeeds, though the sister's son may take his place.

The powers of the *monyekak* are considerable, his functions being chiefly, if not entirely, of the magico-religious order. Examples of his work are given later. He has, and uses for the benefit of the community, the knowledge that renders agriculture, hunting, and war successful, besides perhaps other activities of which

¹ It is extremely difficult to find a word to convey in English the attributes of this class of chieft, who plays an important part not only among the Bari but among other tribes such as the Lotuko. Working through Arabic, he was always called *Sul al-billal*, the “ Lord ” or “ Owner ” of the land. As far as the Sudan is concerned, his existence appears to have been first noted by C. H. Stigand (*Equatoria*, p. 34), though we cannot agree with the account he gives. Such “ fathers ” exist in other parts of Africa, *e.g.* Smith and Dale (*The Ill-Speaking Peoples*, vol. i, pp. 388-9) give what appears to be an excellent instance with regard to a pool which it was impossible to fish without the performance of the due ceremonial by the *bani izhiba* the “ master of the pool.” In this instance the ancestral spirits were definitely regarded as the guardians of the pool.

we are yet uninformed. Typically, *i.e.* in the matter of land, the *monyekak* is the man who first clears and plants a portion of bush, or his direct descendant who alone possesses the necessary magico-religious knowledge to make cultivation on that land successful. It follows that discovery of the clan of the *monyekak* decides which clan traditionally first occupied a particular area. Mr. Driberg states that the *monyekak* has a regular *bunt* (medicine-man) attached to his suite.

Mr. Whitehead discovered that besides these authorities there is a chief, called *mor* or *mar*, whose power, so far as he could ascertain, is not great, but who receives presents of certain forms of food, and from time to time exercises the right to call for a contribution. This he does in a prescribedly humble manner. Information is lacking as to the precise functions of the *mar*, but Mr. Whitehead writes that there are probably four *mar* (at one time) for the true Bari.¹ The power of the *mar* seems small, and he is not to be confused with the rain-maker of Shindirru, who is a far better established and more revered chief. The power to exact tribute on the part of the *mar* is slight. A free offering of various food-stuffs is made, and he may ask the *lui* for a contribution of hoes. The village chief appeals to the *temejik* or elders among the freemen, and they can give or not as they like. The *tomonok ti ypinkut*, or smiths, apparently also make a contribution, and are thus in this respect on a footing with the freemen. On the other hand the *dapi* and *tomonok ti kare* (fishermen) make no contribution to the *mar*, because their direct overlord is the village chief and they have to contribute to him. Of course the *mar* may have—in fact, is bound to have—a number of *dapi* and fishermen directly dependent on him in his character of local, not paramount, chief. The *yari*, or hunting class, also make a contribution to the upkeep of the *mar* in the form of honey.

The following are Mr. Whitehead's translations of the texts he collected dealing with the *mar* :—

"But long ago there was nothing very much given to the chief. But in a year he was given such a thing as the kernels of the *heglug*.² And the people who are in the forest in the deep wood (called Yari), they collect and give honey, and others collect and give meats which are dry, and the smiths in the districts collect and give hoes.

"The *mar* is not willing to call for hoes every year : he wants them in some year (*i.e.* occasionally). And he calls for hoes from the chiefs who are small, but he does not call with a loud voice : he calls by begging (humbly). He sends word to the chiefs, saying : 'Enclosure of my father, look for hoes for me, but small ones.' Therefore the people are pleased because he begs, but if he calls overweeningly (with a big chest) all the people want to fight with him.

¹ The "chief Allorron," to whom Baker so frequently refers in *Ismailia*, was a *mar*.

This is the common Arab term for *Balanites aegyptiaca*.

" And food such as *hegly* kernels he does not demand at all : people give them freely. Food such as honey he does not demand at all : people give them to him freely. Such as meats he does not demand at all : people give them freely.

" But also he (the *mar*) treats the people well : people who are visitors and have come to his enclosure, although they are ten, they kill an ox, and take away what is left over to their houses. Therefore the people love him too."

The following passage describes how contributions for the *mar* are raised :—

" When the *mar* has sent word to Magara (the local chief of Juba) he tells the small children, and says : ' Bring out the dance (*u* = the drum for the dance) to-day.' And so these children or boys bring out the dance. And so a great many people come to dance. But when the dance is over he tells the people in the dancing-place and says : ' Listen, but no woman is to speak at all. Your chief the *mar* is very much in need : he says he is to have sought for him hoes, but small ones '¹ (*i.e.* he says you are to look for hoes for him, but they are to be small ones).

" ' You are to go and tell your fathers.' And they go and tell their fathers. And so he who wishes to give brings his on the next day, he who does not wish sends his son, and says : ' Go and tell such and such a one, and say : Father says he has no hoe.' "

Returning to the *böman*. We at first thought that the English word " commoner " would be a fair translation, but although the great mass of the *böman* are what we should call commoners, it does not seem wise to use this term for a class which includes alike the *mongekak*, the *mar*, and all *dapi* except the special assistants of the rain-maker. We shall therefore use the native word *böman* without attempting to find an English equivalent, recognizing that the term implies no more and no less than ignorance of rain-making, and that quite powerful chiefs and various specialists would be classed as *böman* because they are not rain-makers. On this matter Mr. Whitehead writes that the Bari define *böman* as follows :—

" ' *Böman a jutu kan ti den pion*,' *i.e.* ' *Böman* are just ordinary people—they don't understand, or know, water.' That is to say, the class includes everybody who is not a rain-maker. All men of all clans and classes of society are *böman* : a slave is a *bomantio*, and so is a chief. Thus most, if not all, of the chiefs of the west bank of the Nile are the *böman* of Pitia Lugan, the great Bekat rain-maker of Shindirru : these chiefs are *kinak*, but they are not *kinak ti pion*, they do not understand water."

Further, the *böman* have been explained to Mr. Whitehead as the ' *abūd* (Ar. slaves) of the rain-maker, since they pay him tribute in cattle in exchange for his

¹ *Lingya* are the small women's hoes. The *mar* asks for women's hoes to show that his request for assistance is not a demand. However, he expects to get, and the *bu* expect to provide, the ordinary hoe or *kupa*.

services in bringing rain. As already stated, the reciprocal term to *bōman, kōr* (sing. *kōrtio*), is applied to all who understand water, *i.e.* the lesser rain-makers of Belinian, their *dopi*, and the *dopi* of the chief rain-maker, Pitia Lugar of Shindirru. "The two words simply imply knowledge or ignorance of rain ritual."

There are two classes of people who might exert considerable influence. These are (1) the *bunūt* (pl. *bonok*), "medicine-man," or "witch-doctor," who may be of either sex, but according to Mr. Whitehead usually female, and may belong to the *dopi* class; (2) the *nuta dama*, the "big (*i.e.* rich) man," but the *nuta dama* scarcely forms a precise category as do the other classes we have mentioned, for all well-to-do elderly men come under this heading.

The *bonok* accumulate a good deal of wealth by their profession and it seems that generally each rain-maker and *mungelak* has a *bunūt* attached to him. The *bunūt* is consulted on all diseases whether of men, beasts, or the crops. His functions may be roughly summed up by saying he is the beneficent "medicine-man" or "witch-doctor" of the usual African type. Mr. Driberg tells us that female *bonok* are especially prone to states of dissociation and ecstasy.

The *nuta dama*, for whose first mention we are indebted to Mr. Driberg, is described as a man of wealth and influence, who, though belonging to the *bōman* class, by reason of his wealth commands respect, and in certain circumstances answers for a group of followers who acknowledge his leading. The term is not a title but is descriptive. A *nuta dama* addressed as a chief would disclaim the title, saying: "My people [*i.e.* relatives] are *bōmta*, I am not a *matat*."

Mr. Whitehead also states that *nuta dama* simply means "big man."

"His group of followers is called a *lapet*, and they will live round, though not in, his homestead. They are poor people who live with the *nuta dama*, who is their *matat*, and who get assistance from him. Judging from the instances in Juba village, I should say that the majority of the *lapet* would be of the same clan as the *matat*, but that it is quite possible for a man of another clan to be a member of the *lapet*. In the village of Lomurie the *lapet* was a little more definitely organized. There were common sleeping-places for the unmarried members of the various *lapet*; these sleeping-places belonged to the *nuta dama* and are called *bale* (pl. *balia*). A *nuta dama* will assist a member of his *lapet* to marry. A *lapet* in Juba consists of about half a dozen men. At Lomurie there was one of ten men: my informant said he had his *lapet*, ten people sat in his *bale*; they surrounded their *nuta dama*. The *nuta dama*, who said 'My people are *bōman*, I am not a *matat*,' apparently used the terms as antithetical and exclusive and meant that he was not a *matat lo pion* but a *bantio*, that is, one who paid tribute to a *matat lo pion*. But he could probably be addressed as *matat*, in the sense of being a master or leader."

Mr. Whitehead does not describe in full the nature of the return made to the *nuta dama* by the men of his *lapet*, but when the latter killed game two of the legs

were given to the *jutu duma*, their patron, while the *loiet* will build the common cattle enclosure for their *ñutu duma*, who naturally allows them to use it.¹

Matat lo gala (lit. chief of foreigners) is a term which appears to have come into use since Baker's day, and refers to temporary function rather than to traditional status. It is applied to chiefs or important men to define their responsibility to, and connection with, the foreign government: thus the more important *böman* of Mödi Pitia, the Shindirru rain-maker, are recognized as actual or potential *kimak ti gala*, since the District Commissioner works through them.

Mr. Whitehead has given us the following interesting translation of a Bari commentary on the two kinds of chiefs, "the chiefs of the foreigner" and the hereditary chiefs from long ago "who truly are *komonyekak*":—

"And when the Jadia (Mahdia) came long ago, other chiefs began to be instituted (?) who were not *komonyekak*. Therefore in those times all the Bari did not listen to the words of the chiefs who were *komonyekak*: they listened to the words of the Chiefs of the Foreigners. Certainly the words of the Chiefs of the Foreigners were attractive because they (the *kimak ti gala*) attended to the words the foreigner commanded them, and repeated them. Therefore all the people listened to the words of the Chief of the Foreigners, and did not listen to the words of the chiefs who were *komonyekak*."

ORIGIN OF *dupi*. SMITHS, ETC.

The *dupi* (sing. *dupiet*) are a difficult class to understand in the light of our present limited knowledge. No similar class exists among the Lotuko and Lokoïya, while Mr. Whitehead informs us that although present among the Kakwa they are absent from the Mandari, Nyangwara, and Fajelu. Their origin is probably best accounted for on the lines of Mr. Whitehead's theory given on p. 431, and if a parallel be sought, that of the Dorobo among the Nandi and Masai is perhaps as good as any.

Accepting Mr. Whitehead's theory, the assignment to the *dupi* class of a sluggish freeman of which Mr. Driberg heard would, if it really occurs, be a secondary development, while the alleged treatment as *dupi* of Lokoïya captured in war would, except racially, be in accord with the original process. Mr. Whitehead points out that the Bari

"themselves are uncertain how to account for the origin of this class. They think that people may have dropped into the status of serfs in a time of severe famine, when they were forced to find a patron to support them, but their

¹ Since the above was written, Mr. Whitehead has supplied the following translation of a Bari text:—

"The rich man thinks and says, 'Let me lend (?) the poor men cows, so that they may help me in bad things, as with hyenas, as with enemies, with building the enclosure of the cattle, so that we can work much, and drive out by turns, so that I can have time which is broad (i.e. leisure);' so the rich man truly arranges the cattle among the people, so that they may help him."

ranks have not been recruited by freemen who have sunk in the social scale so long as anyone can remember. They also tell a story of the coming of the freemen into the country. The *dapi* were already there and supported life by trapping rats. But when the *lai* came their cattle trampled down the rat-traps and deprived the *dapi* of their food. The *dapi* lamented, and begged the freemen to give them and their children milk, in return for which they would work for them."

Male *dapi* can be bought and sold within the tribe, and the disposal in marriage of female *dapi* to other *dapi* is a matter for the owner, as no *dapi* should own [animal] property. They are said not to cultivate, nor to herd cattle and goats, but to fetch water and wood and to cook food, and are employed on all ceremonial and state errands, when they require to be very liberally fed, and consequently only rain-makers, *komongekak*, *bonok*, and wealthy *lai* possess *dapi*. A *dapiet* may act in place of a rain-maker while the latter is a child. When a *dapiet* of a rain-maker or *mongekak* pays an official visit he must be presented with at least a goat, and generally expects a hoe as well, besides food and drink. An insult to a *dapiet* is an insult to his master, and will be dealt with by the latter. A *dapiet* is privileged to defecate in the cultivation, and no one would interfere or complain. His ceremonial duties will become evident later. The government taxes of a *dapiet* are paid by his owner.

In the Haddon MS. the *dapi* are called *lupia*, and it is stated that they constitute "a menial class: the men fetch water and firewood, and cultivate for their owners, but not for their own benefit; their children are the property of their owners to marry elsewhere: they have no property but get their food from their owners. They may not eat with their owners, but have what is left. But they are not ill-treated and are not unhappy: they get all their food for nothing and do little work. . . . When a man wishes to get a *lupia* he can buy one from a chief who has many, paying a bull and a cow for a man and his wife or he may buy a man and get a wife for him afterwards . . . *Lupia* are buried in exactly the same way as the rest of the Bari. . . ."

¹ The Haddon MS. also gives the following legend concerning the origin of the *lupia* :—

"A long time ago the *lupia* owned cattle, whilst the other people had none. One day when they were out looking after their cattle they came to a *lakuki* tree, and they all sat down and cooked the nuts. Whilst they were so occupied some young men of the people who had no cattle came and took all the cattle, and took the bell which hung on the neck of the bull which led the herd, and tied it on the branch of a tree. The herdsmen still heard the bell ringing and went on with their feast of nuts. In the evening they went to drive the cattle home and found that they were gone. They then followed the tracks and came up with the young men. These men denied that the cattle belonged to the *lupia*, and said they had found them in the bush, that the *lupia* cattle had front teeth on both jaws while these had only front teeth on the lower jaw. The *lupia* looked and found that it was so, with the exception of the bull which led the herd. The others then said that this bull had strayed into the herd. The *lupia* seemed to be contented with this reply, and took their bull away and killed it and made a feast. The *lupia* then divided up: they had no cattle, some . . . took service with the chiefs."

Commenting on the above, Mr. Whitehead agrees that these accounts may be regarded as correct so far as they go.

"The *dupi* are a comparatively small class of hereditary slaves. Their duties are as stated: they are literally hewers of wood and drawers of water. If they belong to a *matat lo pion* their duties will be of a ritual character as well, and they will represent the chief and perform the ceremony in place of the chief. Each will then be treated as a chief.

"The disabilities of the *dupi* class are as follows: they can own no cattle, they may marry only one wife, who must of course be taken from their own class. They may not feed with the freemen, but receive their portion from the chief and go and eat it at the back of the hut. (This may only refer to feasts when meat has been killed and each is given the portion proper to his age-class.) They suffered from one serious disability in the old days, which was that under certain circumstances they might be put to death. If they became too numerous they might be killed for they are supposed to be more fertile than the freemen and in some way to have a malign influence on the fertility of the freeman class. Also on the death of a great rain-maker a *dupiet* was buried with his master. Theoretically a *dupiet* can own one wife only and no cattle: actually he may have up to two wives, bought for him by his master, and in good times, say, three head of cattle though his social inferiority is shown by such facts as, *e.g.* absence of clothing in a village in which nowadays the wearing of clothing is customary."

The following are translations sent by Mr. Whitehead of texts concerning the duties and disabilities of the *dupiet* :—

"Also long ago the *lui* or freemen did not hoe very much: the slaves or *dupi* hoed with the chiefs who were becoming old, who were seeking old age.

"And those *dupi* thatched the crest of the huts: the *lui* did not thatch the crests, and everything of that time (in the way of work) was the part of the *dupi*. Truly the freeman did not eat the bones of the meat, he gave them to the *dupi*: the intestines of the meat were given to the *dupi*: the nose of the cow was cut off for the *dupi*: and all bad things which had become old were abandoned for the *dupi*, but they loved the chiefs very much.

"Among us Bari, when you were angry with a *dupiet* and there were two of you only you never killed him. But when you went to war, you killed at your will: if a *dupiet* it was well, if a *lutat* it was well.

"But the *dupi* in war went in front, and they brought bad words, and they lied to the freemen in war. . .

"The woman grinds the corn, fetches water from the river, fetches fire-wood from the forest. The man looks after the cow-dung, puts fire to it. The

freeman kills the game, the *dapiet* brings wood from the forest, brings water from the river, cooks the meat on the fire, serves it, and the freemen eat it.

"And the *dapiet* receives his thus with both hands, and takes it away to be cut and eats it."

On the other hand the *dapi* traditionally possess certain accomplishments. They are good cooks and know how to catch rats; the invention of beer is attributed to them, while they are specially good dancers, and the great maker of songs belonged to this class.

Mr. Whitehead's enquiries seem to indicate that besides the *dapi* proper, smiths, fishermen, and the hunters of the forest are all on occasion classed together as *dapi*, as opposed to the *lui*, i.e. freemen or commoners. Reference has already been made (p. 410) to the alleged darkness of the smiths. Mr. Whitehead points out not only that the Bari claim that *dapi* proper are of a particular type, but he considers that he can himself recognize it in many instances. Typically they are "shorter, fatter, redder, hairier, and are broad in the face, with rather small eyes." In a Bari tale a freeman disguises himself as a *dapiet* and wears the skin of an animal, apparently to give the hairy appearance. When he throws this off he is recognized for what he is, a freeman. Mr. Whitehead also states that some of his Bari have recognized the likeness of photographs of Congo pygmies to *dapi*.

Considering these differences— which are recognized by the Bari themselves and form the subject of comparisons to the disadvantage of the *dapi*—and bearing in mind the facts that the latter are said to bear a greater number of children than the *lui* or freemen, that these might be killed off in the old days, and the idea that the *dapi* in some way malignantly affected the fertility of the *lui*—together with the story of the loss of their cattle, and their ignorance of cattle which was responsible for the loss (paralleled by similar stories of how the Dorobo lost their cattle by a trick to the Masai¹), Mr. Whitehead concludes that the *dapi* are in the main of different stock from the Bari, the latter originally a true cattle-owning people with strong affinities in language and custom with the Lotuko, Masai, and Turkana. This seems a legitimate hypothesis as to origin, and one from which we have no wish to dissent on theoretical grounds, while in practice it agrees well with the impression left upon us by our sojourn among the Bari, viz. that a certain number of these in breadth of face and nose and aspect of head (we refer to passing impressions, not to physical measurements) resembled the Nuba of southern Kodofan, while others, with longer faces and noses with better bridges, approached more closely to the better Shilluk or half-Hamitic type. We have illustrated this racial distinction by two selected photographs— both taken by Mr. Whitehead— reproduced on Pl. XLV: the one of a village chief, Magara, a Bekat, and the other of one of his *dapi* (also a Bekat man). Here the differences are clear enough: on the other hand, inspection

¹ A. C. Hollis, *The Masai*, pp. 270, 271.

of a series of Bari photographs of "freemen" will certainly show that many of this class present the same type as that of the *dupiet* reproduced on Pl. XLV.

To return to Mr. Whitehead's characteristic distinctions, it is at least noteworthy that Hobbly, writing a quarter of a century ago, described the Dorobo of the Mau Forest as redder than the majority of the Nandi, though they were not short, averaging 68 to 70 inches.¹ Moreover, the Nandi call them *oggich*. Now, *dupiet* may be heard as *upiet* (indeed, we believe this is to be the common Kakwa pronunciation). Bari and Nandi belonging to the same group of languages, the question arises whether *oggich* and *upiet* are variations of a common word used by a group of cattle-owning tribes for an aboriginal non-cattle-owning stock. Or the word may originally have meant no more than "foreigner," "stranger," with the commonly implied pejorative significance. From this point of view the word *opi* perhaps throws some light on the subject. Mr. Driberg tells us that the Lango sometimes apply the word *opi* to a prisoner of war, with the connotation "slave"; but *opi* is also the word applied by the Lango to the Bahima,² and, in fact, to Bantu herdsmen generally, whence "foreigner," and we suggest "inferior."

Turning now to the other "submerged classes," a term which becomes the more accurate the more we extend the hypothesis put forward by Mr. Whitehead to account for the origin of the *dupi*, these include besides the *dapi*, the *yari* or *ligo*, professional hunters, mentioned by Stigand, the *tomonok ti kare*, professional fishermen, and possibly *tomonok ti yukit*, smiths, "workers of the forge," all of whom might have the term *dupi* applied to them when they come into the presence of a chief who is a *luitat* or freeman, although, as has already been noted, the smiths at any rate reject this term.

It seemed to us that though smiths were looked at as different, and to a certain extent despised, Krause exaggerates the lowliness of their position.³ As specialists they are admired for their skill, and in his account of the Kuku,⁴ Dr. Yunis refers to the ceremonial part played by the blacksmith's wife in mourning rites (*infra*, p. 173). Moreover, although iron-workers would pay for their wives mainly, if not entirely, in hoes and spear-heads, they are not limited in their choice to the daughters of their colleagues or to members of any particular clan, and they are allowed to hold and actually do possess cattle and goats, though these are relatively few in number, and, as Mr. Driberg informs us, their contributions to the ram-maker and *monyekak* would take the form of hoes and spear-heads. The Haddon MS. agrees that smiths

¹ C. W. Hobbly, "Notes concerning the Eldorobo of Mau, British East Africa," *Mau*, 1903, 17.

² *The Lango*, p. 402.

³ A. Krause, *Die Pariaelken der Gopuunt*, p. 31 (Leipzig, 1903). Thus, although it would be a fall in the social scale for a freewoman to marry a smith, Mr. Whitehead informs us that unions between the classes do occasionally take place, and are explained by the fact that a man, whether smith or freeman, was not able to find a wife among his own class.

⁴ "The Kuku and other Minor Tribes inhabiting the Kajo Kaji District," *Sudan Notes and Records*, vol. vii, 1924.

can acquire cattle, but refers to them as "a class apart from the cattle-keeping Bari . . ." and states that they "live in separate villages in their own country, under the chief of the district. The smiths provide the chiefs with weapons and hoes, being recompensed by a feast given by the chief, whilst the commoners buy their weapons from them, and it is thus that they acquire property." The following statement made to Mr. Whitehead indicates the Bari attitude to the smiths, and seems tantamount to saying that there are difficulties in settling up :—

"When the smiths have eaten your durra (*i.e.* of a freeman), and you go and call for your hoe, and you say: 'Give me the hoe.' And they refuse and you bring your *labet* (followers), and you beat them. And the smith gives you the hoe. Then again he eats your durra and again you call (for your hoe); and he refuses and you bring your *labet* and you beat him, and you scorn him (insult him), and you are given the hoe."

Where smiths live in a village not their own they frequently, if not always, do their work outside it, as at Belinian, and even at Lebalwa among the Lotuko we noticed that the smiths (of Bari origin) had their workshop at the end of the village on the edge of the hill. The working place of the Belinian smiths is an outcrop of rock called *Beran na tomorok*—the Rock of the Smiths—on the north side of Belinian where, under the shade of an old gnarled tree, the smiths work. The top of this rock is the site at which for generations the women of the village have ground their durra, so that it is pitted with the characteristic oval holes, each a few inches deep.

There is no objection to women being present during the working of the iron; indeed, Mr. Whitehead states that they sing to encourage the men at their work, and he gives this example of a song :—

"*A kaji nora na Nijak*
Na gumba delet
Ko Gbangula gwa labet !
Nirajak kana do'qi grena
A Jada gburadga lora
'Yi ta Lokuriet' o'poo
Pooa kuo 'doko a pajo.'"

"Kaji, daughter of Nijak
 Over there voices (her) sad cry.
 And Gbangula is mourning
 Those children wish to weep.
 Jada . . . sings:
 'We go to Lokuriet for water
 Our water is brought from far.'"

We have no evidence that smiths are regarded as having magical powers: on the other hand, iron plays a large part in warding off and curing sickness—witness the shin-guards, bracelets, etc., prescribed by the *bunit*, and the power of the iron rods of the rain-maker and the *intu no lori*—while, as Mr. Whitehead informs us, “if anyone breaks a smith’s tool he has to make good the damage, which is partly of a magical sort, by the provision of a goat.” Mr. Whitehead points out that the ore is not mined, but found in the beds of the local streams, and he adds that smiths “may be found working in the villages of the ordinary Bari or in villages of their own situated near the source of their raw material.”

MEDICINE-MEN AND THEIR FUNCTIONS.

At this stage it seems advisable to try to describe the position of the *bunit*, and to indicate the nature of the practices undertaken at his direction. Important as the *bunit* certainly is from the social standpoint, he will not as a rule be met by the white man in his official capacity nor will his house be pointed out. This applies not only to the Bari but to every tribe which has seen enough of Europeans to realize their views on witchcraft, sorcery, magic, call it what you will, and how utterly these differ from their own. Thus, during our journey in 1921-2 it was only among the Lango of Logoforok on the Sudan-Uganda border, where the white man was relatively slightly known, that when the chief first visited us he was accompanied by an individual of obvious importance who was introduced as the *kojur*.¹ Within the tribe it is no doubt true to say that the *bunit* is in the main a power for good: it is certain that many of the ceremonies in which he takes a prominent part, and which are undertaken at his direction, have the effect of comforting the sick and those in trouble, of inspiring confidence, and probably of conserving the unity of the family and even of bigger groups. Yet, admitting this to be true, we feel it would be premature to assert that the *bunit* is never responsible for such practices as led our informant Kinyon (p. 435) to attribute the death of his relatives to magic.²

With regard to the actual methods of the *bunit*, we were not told of any incidents suggesting conditions of ecstasy or dissociation, and although we did once hear that his power and even the revelation of particular facts³ might come to him in

¹ A word, perhaps, of Nuba origin, but by the natives considered to be Arabic, and used universally in the southern Sudan to signify “magician,” “witch-doctor,” “medicine-man.”

² Owen (*Bari Grammar and Vocabulary*) gives *bunit* as signifying sorcerer (good) and *demit* as sorcerer (bad). Actually, as pointed out by Mr. Whitehead, *demit* signifies one having the evil eye.

³ Mr. Whitehead has supplied the following example --

“There was a certain man who was a great *bunit*, his name was Sebur. Long ago he commanded the people, saying, ‘Enclosure of my father, I *demit* last night that other people were coming up the river on the north side following the river up, and the things on their heads were red, and their bodies were red. We must sprinkle dust so that they do not come.’” (This must have been the arrival of the northerners, probably Baker’s troops.)

dreams, it seemed that generally he was regarded as the possessor of peculiar knowledge, which in some instances at least had descended from father to son. Unfortunately we have no reliable information on this subject, or of any special training, though it would seem that we may safely deduce a special degree of knowledge of, and intimacy with, the spirits of the dead. As to the practices a *bunt* enjoins on his clients, though doubtless conforming to certain types, they do not at first sight (and no one has yet gone further than this) strike the observer as absolutely rigid. Moreover, there may in recent years have been borrowing from neighbouring tribes, the Lokoia and perhaps even the Acholi: indeed, we believe there is evidence pointing in this direction. The actual practices enjoined by the *bunt* to avert or cure sickness are, as far as we know them, described with other religious acts on pp. 455-61.

Although we have stated that the *bunt* is not to be regarded as a sorcerer in the ordinary malign sense of the word, sorcery plays so large a part in the life of the Bari that no account of them can present anything approaching a fair picture without consideration of the production of sickness and death by means of what the European commonly calls magic, and as far as the social results of this belief are concerned this is perhaps the best place to refer to them.

Although we were quite unable to learn anything as to the technique of the methods employed by sorcerers, we may record an instance with which in its later stages we were somewhat closely associated, showing the reality of the belief, its social importance, and the tragic results that ensue in the attempt to harmonize the beliefs of savages in the condition of the Bari with the recognized, and no doubt in the main, necessary rules of administration.

Among our informants was one Kinyon who found himself in a difficult position and was willing, even anxious, to discuss the matter with us, in the hope that we might assist him. He had, as he believed, seen a number of his relatives die one after the other as the result of magic directed against them by a certain "foreigner," a man of Jebel Lafit, who had, however, been brought up among the Bari. Kinyon required an operation, referring to which we were prepared to give him a letter to the Medical Officer at Mongalla. But this did not satisfy him, it was obvious that he wanted more than an introduction, and after a good deal of hesitation a story of the following order came out: "The Government was good, very good indeed, but one thing was certainly lacking, they did not understand magic, and this did a lot of harm. In the old days things were much better, for if a man killed others by magic, people would kill him: now the Government had stopped this, hence deaths due to magic have increased greatly." His genealogy showed that a large number of his family had died young, and then, when at last his (classificatory) brother, a *teton* like himself, had died, it was too much for him, he had struck the magician on the head with a stick and the old man had died. Public opinion was obviously in his favour, and the deed he alleged had been condoned by his chief, who had

told him to kill a bullock, yet he was afraid of going into Mongalla, for although the magician was not a native of Belinian, he had been brought up there since childhood, and his foster-brother might complain to the Government. He was assured that the operation was necessary and not dangerous, and determined to go to Mongalla, arguing that if the Government wanted him it was as easy to lay hands on him in his village as at Mongalla. The mournful result was that he died in prison of pneumonia after an operation described as thoroughly successful.

In another instance to which we may refer, though the story was not told us at first hand, there was a definite account of a spear-thrust from which a man died in a few days, and it was only when the matter was thoroughly investigated that it appeared that there was no actual body wound.

Apart from the treatment of disease, the *bunit* is consulted in circumstances of doubt or difficulty in order that by his advice a happy outcome may be brought about. The following example given us by Mr. Whitehead is a good instance of a constantly recurring African difficulty, and the fact that the local chief and his family persisted in the course they had determined against the advice of the *bunit* is important, as an example of the independence of outlook in religious matters (for although not specifically stated, we do not doubt that the spirits of the dead were regarded as concerned with the site of the new village) which we have from time to time observed among the riverain blacks of this part of the Nile Valley.¹ On the removal of the native village of Juba the chief and some of the older men consulted a *bunit* as to whether they should move, with the result that the site already chosen by Magara, the chief man of the village, was condemned for the reason that the ground was bad; a death had occurred there and this would entail other deaths. Actually no death had occurred there so far as was known; moreover, though Kanyi, son of Magara, had only lately died in Juba, his grain stores had been moved to his father's new home. Magara, his brother, and his family, decided to disregard the advice of the *bunit*, though the bulk of the village followed the medicine-man's advice and chose a site by the river bank. As an example of a portent leading to the advice of the *bunit* being sought, Mr. Whitehead cites the tale of the youth who brought a young girl into his house, where she turned into a dog.

Mr. Whitehead writes of another person of importance, the *intu lo lori*, or "person of the iron rod," who exorcizes illness from the village, and whose symbol of office and tool is an iron rod, *lori* being the same word as that used for the iron shin-guards which are worn on the legs in order to keep away sickness (pp. 434, 460).

Among the Kuku, one Tombe Gborron, described by Dr. Yunis as a sub-chief of "Opari District which borders Kajo Kaji District," possessed "a spear-like iron rod" of such virtue that the officer administering the District used this for swearing

¹ We may instance the persistence of the belief in the Dinka god among children and grandchildren of mixed Shilluk-Dinka marriages, and the promulgation of new, *i.e.* more or less unorthodox, practices by Dinka medicine-men.

the people, each being "fully convinced that should he swear falsely by this rod he is doomed to die."¹

Besides the *bunit*—the good medicine-man, who works for the good of the people—there is the evil medicine-man, who is in theory, and perhaps in practice, a poisoner, against whose machinations the *bunit* prescribes many of those charms (such as the shell of a tortoise, twists of animal hair, iron necklets, wristlets, leglets, etc.) in which he does a considerable trade. Presumably it is the evil medicine-man who causes foreign substances to pass into his victims, since these are certainly extracted from the bodies of sick people by the *bunit*. The Bari term for the evil medicine-man as poisoner appears to be *intu lo wini*.²

The evil eye, *kidem*, can and does work much harm, and, like many of their neighbours, the Bari consider monorchids the most dangerous of *demak* (possessors of the evil eye). Mr. Whitehead cites the instance of a boy suffering from liver complaint and dropsy, who was taken to a well-known *bunit* (after being brought to the dispensary where little could be done for him), who diagnosed his complaint as due to *kidem*. Further, Mr. Whitehead informs us that among the Nyangwara, Kuku, and he believes the Kakwa and Fajelu, there is a person called the *kasumanit*, a word meaning "poisoner." She is a woman who, having lost her own children, or merely because she has succeeded to her mother's profession as poisoner, "has grown to hate all those who are healthy, young, or good-looking."

Dr. Yunis devotes some pages to poisoning among the Kuku, but it cannot be said that he produces evidence for any real knowledge of poison apart from a rather doubtful appreciation of snake venom. A decoction of the head of a poisonous snake is used, and this, called by the Kuku *kishum*, but "commonly" (*i.e.*, presumably in the bad Bangala of the western Sudan) *nyama*, is said to be administered in food with fatal result. There is, moreover, some connection between *kishum* and thunderbolts.³

TERMS OF RELATIONSHIP.¹

The relationship system of the Bari has the usual classificatory features: the following are the terms in use:—

Baba.—Father, father's brother, father's sister's husband, mother's sister's husband. The term is used in the ordinary classificatory way for these

¹ *Op. cit.*, pp. 26, 27. Tombe formerly possessed great power. He could become a leopard at will, and in this form revenge himself on his enemies: moreover, by blowing a whistle he could communicate with and command the leopards of the country. Apart from the iron rod, the whole passage suggests Azande influence.

² Presumably the *intu lo wini* corresponds closely with the Shilluk *jalyat*, "the man of herbs," both being poisoners, at least in intention. Whether their preparations are true poisons we cannot say; our experience in Melanesia has perhaps made us unfairly sceptical; Mr. Whitehead states that one preparation is "a decoction of *lakongo*, the red mites seen after rain in profusion on the ground in the early days of the wet season."

³ *Op. cit.*, p. 33.

⁴ The abbreviations m.s. and f.s. respectively indicate male and female speakers.

relatives. *Morqe*, the word for father, is not used as a term of address.

Yungo.—Mother, mother's sister, a classificatory term sometimes extended to the wife of the father's brother. *Yoh*, the word for mother, is not used as a term of address.

Noro (pl. *nurajik*).—Child, brother's child (m. & f.s.), sister's child (f.s.), wife's sister's child, is also used in the usual classificatory way: the only descendant of the succeeding generation who is not addressed as "child" is the sister's son (m.s.). A man may also address his own younger brothers and sisters as "children" (see below).

Loñaser and *Kiñaser* or *Kiñaser*.—Brother, father's brother's child, mother's sister's child, sister, father's sister's child. These terms thus include both types of parallel cousins. If a man marries his father's widow the children born from this union are counted to the deceased, hence they are addressed as *loñaser* and *kiñaser*, not as children by their real father. This only occurs when such a marriage has actually taken place: its potentiality does not affect the relationship system. On the other hand, there is a tendency for a man to call younger brothers and sisters *nurajik likan* (our children, or little ones (m.)) and *nurajik nikan* (our children (f.)), respectively, though they will call the elder brother *loñaser*.¹

Wasanok.—Father's sister. We did not discover any special duties or privileges affecting the father's sister.

Mananye.—Mother's brother, mother's brother's child. As the child of the *mananye* is also called the *mananye* (the mother's brother's son being called by the same term as his father), so the mother's brother's son's child is also addressed by this term.

Nöringi.—Father's sister's child, sister's child (m.s.). *Nöringi* is the reciprocal term to *mananye*, and like it includes persons of more than one generation, the sister's child (m.s.) and the father's sister's child. Thus male cross-cousins stand in the relationship of maternal uncle and sister's son to each other.

Marenje.—Father's father, mother's father.

Yakanye.—Father's mother, mother's mother, mother's brother's wife.²

Ngakwari.—Son's child, daughter's child, husband's sister's child; in a general sense "grandchildren."

¹ Mr. Driberg points out that this does not imply a sense of relationship. *Noro* means child, not son or daughter: *toro* is the correct word for offspring.

² Mr. Driberg notes that in the "water of Yakang" cult Yakang refers to father's mother.

Nogwo.—Wife's father, wife's mother's brother, wife's mother's brother's son, husband's father, husband's mother's brother, husband's mother's brother's son: *nogwo* includes all the male relations of the wife of the generation of her father (including the mother's brother's son, who is treated as belonging to the generation above him), when a man uses the term. The corresponding relations of the husband are addressed in the same way by a woman.

Komonit.—Daughter's husband, daughter's daughter's husband (m. & f.s.), sister's daughter's husband, father's sister's daughter's husband, husband's sister's husband: *i.e.* is reciprocal to *moken* and *hogwo*.

Moken.—Wife's mother and her sisters, wife's mother's mother, wife's brother's wife and her sisters, husband's mother. This term is used by a man to his mother-in-law in a classificatory sense, *i.e.* to the sisters of the mothers-in-law of all whom he calls "brother." The wife's brother's wife is treated as mother-in-law, although a man cannot marry his wife's brother's child.

Lutu.—Wife's brother, sister's husband (m. & f.s.), wife's sister, father's brother's daughter's husband, and mother's sister's daughter's husband.

Koba.—Husband's sister, brother's wife (f.s.), husband's brother's wife, wife's sister's husband. The *lutu* and the *koba* are used by both sexes to both sexes. Both are reciprocal and denote persons of the same generation: the former denotes the wife's relatives of the same generation, while the latter indicates those belonging to the husband's group. Between neither groups is there "fear" nor ceremonial respect, thus differentiating persons to whom these terms are used from the *komonit* and *moken*.

Köyini.—Co-wife. We understand that the first and principal wife might also be addressed as *yaingo* by her co-wives, but Mr. Whitehead found that this is only done while the younger wife has not borne a child; when she has become a mother she might call the co-wife *keyini nikan duma*, "our great co-wife."

Lalet (pl. *lian*).—Husband, husband's brother.

Narakwan or *nakwan* (pl. *naté*).—Wife, brother's wife (m.s.), son's wife (m.s.), father's sister's son's wife, sister's son's wife (m.s.). *Narakwan* means "woman." We were told that in a general way a man would call all the women of his own clan "sister," and all those of his wife's "wife." However, this is not actually the case, as the wife's sister is addressed as *lutu*. Further, *lalet* (husband), the reciprocal to *narakwan*, is only used towards the actual husband and his "brother." The son's wife, sister's son's wife, and father's sister's son's wife are also addressed as *narakwan*, but the reciprocal terms to these terms are *nogwo*, clearly implying that they are not marriageable.

Two additional terms are recorded by Mr. Whitehead: *notage* for the children of the mother's sister (who may also be called *loñaser* and *liaser*) and *ditapit* for the husband's sister.

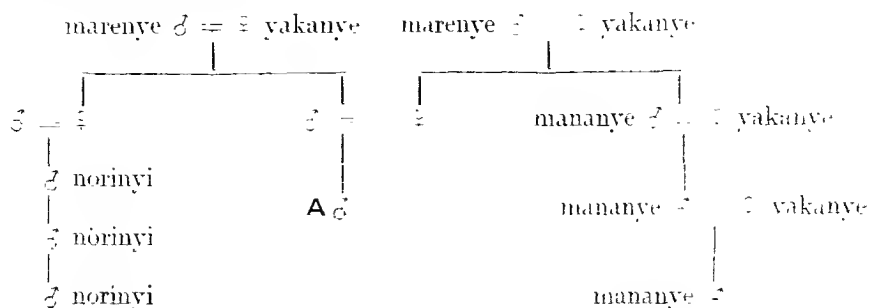


TABLE SHOWING RELATIONSHIP TERMS OF SUBJECT "A."

The *mananye-nörinyi* relationship is peculiar, in that a man addresses his maternal uncle and his maternal uncle's son by the same term. Thus the male cross-cousins stand in the relationship of maternal uncle and sister's son to each other. If we regard the relationship between older and younger generations as one of comparative superiority and inferiority, we must conclude that a man stands higher in rank towards his father's sister's child than he does towards his mother's brother's child: in other words, a man treats his mother's brother's son with the respect due to his mother's brother. Throughout this account the importance of the maternal uncle has been demonstrated, and it is suggested that this status of mother's brother passes from father to son, and is, as it were, anticipated by the son during his father's lifetime. This anomaly, though not necessarily the direct outcome of any customary marriage, is consistent with the Bari practice of marrying the father's widows, and taking up the position of father to the younger children of the father, and thus that of maternal uncle to the sister's sons of the father. It should be noted that this close association of father and son, *quasi*-identification, only affects the maternal uncle-sister's son relationship (and hence that of cross-cousin) and not that towards own children or children's children.

The use of *yakanye* for the wife of the *mananye*, as well as for the father's mother and mother's mother, must be noted, with the result that a *yakanye* can belong to the generation of the grandparents and to *any* succeeding generation.

A marked feature of the system is the large number of terms used for relatives by marriage.

BEHAVIOUR BETWEEN RELATIVES AND CONNECTIONS.

There is little to say concerning the behaviour among the members of the immediate family. Children are born (or, at least, the first children) in the house of the mother's parents, but are subsequently brought up by their own parents, usually in close proximity to their father's parents, brothers, and their families. No special rules of etiquette or avoidance have been recorded within the immediate

family circle or among any cousins. The bond between a man and his mother's brother has been mentioned on several occasions: attention must be drawn to the fact that the attitude of respect shown by a man to his mother's brother is extended to anyone to whom the term *manange* should be used, and as the son of the *manange* is also the *manange*, a grown man may stand in this relationship to a little child. In case of illness the saliva of the mother's brother (*manange*) is particularly efficacious. Should a man be ill he will ask his mother's uterine brother to spit on him, but if the latter be not available anyone whom the sick man calls *manange* will be asked to do this service. Even if the *manange* is a small child (as is possible with the Bari nomenclature) and the patient a man of importance, the remedy will be sought.

Subek, who married Idoñ, the widow of his *manange*, thus begat another *manange*, and the fact that he paid no bride-price, and that the child was accounted as child to the dead man, carried with it the fiction of relationship. In theory, Subek should treat the child Lado with respect, and we were told that he would not beat him if he were naughty. Mr. Whitehead thinks this is not quite correct, and that the special relationship between the two would not be observed until the boy attained the age of eighteen or twenty.

A man "avoids" his mother-in-law, that is to say he never meets her face to face in public but makes a detour in order to prevent this: he would never enter her hut, but it is not necessary to avoid entering her village, or to be absent from any public meeting which he knows she will attend. It is sufficient then to avoid her proximity. In spite of this, he must be constantly paying her some kind of attention and a ceremonial attitude of respect is maintained to all who are called *woken*, i.e. the sister of the mother-in-law, and the mothers-in-law of the brother, as well as the wife's brother's wife. No reason was given for applying the term to the latter, but the practice is common in this area.

The following translations of a series of texts collected by Mr. Whitehead throw light on the psychological aspect of the relationship between son-in-law and mother-in-law. The first is a general statement, which, taken in conjunction with what we have already written concerning avoidance, is of the greatest interest as indicating the thoroughly ambivalent quality of the feelings to which the relationship gives rise. We believe that most anthropologists—and this certainly holds good of ourselves—have hitherto overstressed the negative aspect of the mother-in-law taboos.

"The mother and the son-in-law—their affection for each other surpasses, goes beyond the father-in-law, because the son-in-law is able to support (her) very much, and the thing which is eaten he wishes to make his mother-in-law eat it every time. Therefore the love of the mother-in-law becomes great for the son-in-law. She also wishes to make the son-in-law eat of what she has, as with tobacco, it is never wasted, as with beer, it is never wasted. And everything which is good, she wishes to give to her son-in-law. But the father-in-law wishes his things to be cattle and if there are many cattle, then he loves his son-in-law."

The remaining texts are all stories, not direct statements of feeling and behaviour, and apart from their psycho-analytical interest, with which we are not here concerned, show the extreme importance of knowing and practising the correct etiquette.

Nos. I and II deal with men who did wrong by eating food belonging to their mothers-in-law. Both were obliged to leave their wives on account of their fault, though in No. II the man had himself provided the bull for his mother-in-law.

No. III, which is not so clear, deals with a woman who did wrong by stealing her son-in-law's milk.

No. IV appears at first sight to belong to a different category: a folklorist might classify it as a "droll," but the anthropologist, especially with psychological leanings, may legitimately ask why a man normal enough to be married should in this instance misunderstand the obvious meaning of the word "cut." If this point of view be ignored, then the story tells of the ridicule a man brought upon himself by not understanding the correct way to treat his mother-in-law.

All four stories indicate that a man is expected to contribute considerably towards the upkeep of his mother-in-law, and that she in return helps to supply her son-in-law with beer and tobacco. We cannot explain why it is correct to drink beer made by her and a sin to eat food she has cooked.

I.—A certain man went to his father-in-law's house. And the rain fell and brought out (the flying ants). In the afternoon the people went for reeds, and in the evening the people went to the wood to their places round the ant-hill. And this stranger (son-in-law)¹ said he was going. But the mother-in-law would not have it, and said: "Stay at home, my son." Thereupon the mother-in-law brought out her *ludume* (a sort of yam) to the fire. And after the people had gone the son-in-law saw the *ludume* and was glad and took it out (of the enclosure). And he took it off to the road which led to his own home, and hid it in a fig-tree and returned. And he lay down. A little time after the people of the ants arrived, and his wife entered the hut, and looked for the *ludume*, and found there was nothing. And she did not speak, and lay down.

The next day in the morning that son-in-law said: "I am going to my own home." And the wife said: "Very well." And the wife accompanied him for a distance upon the road, and returned back. And there was a certain fig-tree there, and when the wife had climbed it she looked for (fibre to make) a *bunit*.² And the husband returned and thought: "Perhaps the woman has gone home." But the woman was in the fig-tree. And he came thither, and did not see, and took out the *ludume* which he had hidden there the day before and started to eat. And when he

¹ The word translated son-in-law and stranger is *komonit* (pl. *komon*), i.e., "man outside the clan."

² This is the bunch of strings or "tail" worn by women, made of the twigs of a species of fig, *biotat*, chewed until soft and pliant.

had finished he said that he would break the cooking-pot ; and his wife said “ *Wodio*.¹ do not break it : it belongs to mother.” And the man was very frightened and said : “ Where shall I go ? ” And he thought upon everything, and he thought that it was better that he killed himself, because he had stolen the food of his mother-in-law²—a very bad thing. So he spoke and said : “ It is better that I leave my wife.”

And (upon his coming home) his father said : “ What is it, my son ? ” And he said : “ I am leaving (my wife) for nothing.” And his mother also came and said : “ Why, child ? ” He said : “ I myself am simply leaving (her).” And his father said : “ If so, you shall bring my cattle.” He said : “ Very well.” And he collected the men of his age,³ and said : “ Brothers, men of my age, I do not find my words (easily). Those cows now—even though mine—it is better that I leave them to my father-in-law, because it is truly I myself who have done wrong. My mother-in-law has not begun harsh language to me. My father-in-law also has not spoken me wrong. Truly that wife of mine too—I have not heard evil words in her mouth. Those cows are not mine. Truly I have wronged (?) that daughter of Legi.⁴

And forthwith those people called for those cows of theirs, and the father-in-law said : “ Why, strangers of mine ? I have not spoken evil to you.” And those many people said : “ (These are) no words of ours. These words are of your son-in-law [*i.e.* the complaint is his]. It is he who brings us.” And the father-in-law said : “ Call that girl, that the men may ask whether she has spoken evil to her husband.” And this girl said : “ *Wodio*, father, why are we meeting this son of Legi ? ” And he (the son-in-law) said : “ Father, my father-in-law, do not be angry for nothing, I am dividing my cows.” And the father-in-law said : “ *Iot*.⁵ drive off these cows of yours.” And the people separated them. And this girl (who was) their woman watched and called a certain man who was a great man. And she said : “ Father, stand here, my father-in-law. Let me question you.” And this person stood, and she said : “ Has my husband truly deserted me ? ” And he said : “ He has abandoned (you) altogether.”

And this girl ran home and said : “ Father, father, come out. Those people who are driving the cows away—that person, my husband, formerly stole mother’s *budame*.” And her father laughed and hung his quiver on his back. And he started to run, and said : “ You people, I want my eight cows.” And they said : “ Why ? ” And he said : “ Your son has refused (his wife) and has stolen.” And he was given those eight cows. And he took them to his home.

¹ *Wodio*, a cry of distress.

² A man may not eat this : he can only accept milk and tobacco from his mother-in-law.

³ “ The men of his age,” *i.e.* his age-class, *b.c.* The man seeks their advice, and they are also called to judge of the conduct of his wife.

⁴ Married couples or newly married couples (?) may not address each other by name, but say “ son or daughter of Legi.” Legi means “ So-and-so.”

⁵ *Iot*, an expression of indignation (?).

II.—There was a certain man who married his wife Ja'be and brought a bull and said: "Brothers, my mother is growing thin with hunger. Take this bull, kill it for meat so that she can eat it." And his brothers said: "Good." And his brothers went and killed that bull and gave it to the mothers-in-law. And they came home, and the husband of that girl asked his brothers saying: "Was that bull fat?" And the brothers said: "Yes it was very fat." And he took a spear and went, and when he had got to the road, rain fell, and he continued straight on and his wife saw him and admitted him to the house. And he looked up and saw the meat in the house all fat. And he took it, and seized it with his teeth meaning to cut it thus, and he shaved off his lip, and his teeth were left exposed.¹ And so he arose at night thus. And also when he came to divorce this girl, he was unwilling to (marry her) because his head was loaded with shame.

III.—There was a certain man who married the daughter of a rich man. And the brothers of this woman all died. And the mother remained. And the son-in-law said: "Let me take you to my home." And this mother-in-law of his came. And he said: "Here are these two cows: and you may drink (their milk) and nourish yourself." And she said: "Ah, my son, surely I will drink here." And he said: "Good." And she had an evil disposition and stole from her son-in-law and from her child, and went to drink that milk in the early morning. And she ran away at cock-crow. And when she found the *guorut*² she drank it. And both the son-in-law and her (own) child were always searching for that milk. And one day the son-in-law said: "Ah, my wife, we must watch for that thief who is drinking up the milk of those little children (of ours)." And the wife said: "Very well, if that is so, I will watch." And the husband said: "I, the man, will watch." And the wife said: "Very good, if you find, hold on hard." And the husband said: "Very well." And the wife went to milk the cows. And the mother-in-law ran and untied the milk from the rope (which holds the calabash) and drank. And the son-in-law saw and nothing else, did not speak, and returned and said (nothing) had been seen. And the daughter came and said: "Ah, my husband, you are bad (careless?), who drinks these children's milk?" And he said: "Truly, your mother drinks it." And the daughter wept and said: "Ah, mother, you have burnt your body: you have thrown your body to the ground. You are not a person (at all)." And she (the mother-in-law) said: "Why?" And the daughter said: "Who runs to drink the children's milk?" And the mother-in-law said: "Who saw me?" And she said: "Truly my husband was there?" and she said: "Was there, my child?" And she said: "Was there, my mother." And she collected her things

¹ This alludes to the Hamitic method of eating meat. A strip or lump of meat is seized with the incisors and a portion cut off between the teeth and the other hand, and this portion is taken into the mouth. The hero (?) of the story is so greedy or agitated that he cuts too near his face and shears off his lip.

² *Guorut*—curdled milk used to be the usual state in which milk was drunk.

in a basket. And again she asked, saying: "And he was there, my child?" And she said: "He was there, mother." And she arose (to depart) on that day. And that daughter became a proverb (meaning, lit. "measure") until now.

IV.—There was a certain man who came to his father-in-law's house. And he found his mothers-in-law eating the nuts of a tree, and he pitied his mothers-in-law. And he called his mothers-in-law and said: "When I go home you follow me." And truly the mothers-in-law came after him, and he caught a bull that was big. And he killed it for his mothers-in-law. And his mother-in-law, the mother of the girl, refused to eat, and said she would wait to have (a special animal) cut for her, because it is so among other people. But that son-in-law of theirs did not know about things, and the men of his age told him, "Cut (for) your mother-in-law." But that son-in-law did not understand things well, and he brought a knife and said: "Come to the door into my sight my mother-in-law." And his mother-in-law came: and he just missed his mother-in-law with the knife and it whizzed by. And the mother-in-law drew back into the house: and many people said: "Why, such a one, why has thou done this?" And he said: "My age-mates told me." They said: "This cutting isn't done like that. You cut your mother-in-law with a cow." And he said: "(it was) because I didn't know." And forthwith he gave his mother-in-law a cow, but the people laughed very much on that occasion.

The point of the tale depends on the son-in-law's misunderstanding of the word for "cut." He interpreted it literally, but it has another sense in which it means settling an animal on the mother-in-law as part of the bride-price. The words "to cut one's mother-in-law with a cow," probably mean to compensate, to settle the claim, to discharge a debt and so rid oneself of one's mother-in-law and her claims.

MARRIAGE, DESCENT, AND INHERITANCE.

Marriage among the Bari is regulated both by exogamy and consanguinity. As clan descent is patrilineal no man can marry a woman of his own clan, but neither can he marry any relative, whatever clan she may belong to, if relationship can be traced through either parent.¹ He may marry into his mother's clan but not a near relative of his mother. It was said that if a man married a clanswoman the union would be sterile and both husband and wife would probably die. In the case of marrying into the mother's clan, elders would be consulted to ascertain if the relationship were sufficiently remote. One case of adoption came to our notice: the adopted son was restricted from marrying into the clans of his true father and mother and also of his adopted father, but not from the clan of his adopted father's wives.

¹ Unfortunately we did not go into this question sufficiently carefully to discover whether marriage would be barred with a second cousin descended from the brothers and sisters of the father's father who belonged to other clans, but we believe that such marriages would not occur.

Early in our inquiries it was obvious that foreign influence (mainly the Mahdists) had upset bride-prices during the last half-century, and that there had been fluctuations in the amount paid. Concerning this Mr. Whitehead writes as follows:—

- “(1) A generation or two ago freemen were actually unable to pay any cattle at all, purchasing their wives with goats and hoes. There was then an undoubted dearth of cattle, due to war and disease, say, 1889-1908.
- “(2) Before this time very large brideprices were paid by chiefs and freemen, as much as thirty or forty head of cattle.
- “(3) Nowadays *non-free* classes, i.e. smiths (*tomonók*), hunters (*quri*), domestic slaves (*dupi*), are purchasing their wives with cattle, say, four or five up to ten. This is partly due to the great number of cattle available, partly to the introduction of money.
- “In the absence of statistics I should not like to say that the actual number of cattle is at present very much less than it was before the white man came: more probably there has been a redistribution.”

The existence and extent of polygyny is also related to the distribution of cattle: Mr. Whitehead considers that it has increased, the ten wives of Lugar lo Pitia, the father of the rain-maker Leju Lugar (whose rain-making is described on pp. 468-70), being exceptional. It was, he thinks, more usual in the old days for a chief to have three wives, a commoner of some age two, and a youngish man one, while very many people were content with one wife. Nowadays a chief may have six wives or as many as ten, a commoner of some age three, and a young man two. At the same time the marrying age for men is said to have become lower. The ability of the men to take so many wives seems to have something to do with the change of dietary and food-supply. The change has been from a milk diet to a durra diet, and increased cultivation of durra has made a better and more regular food-supply and so enables a man to support more dependents. He further adds that the Bari legends depict a social life unlike that led by the Bari of to-day and more closely resembling that of the Masai.

There is considerable ceremonial preceding the actual marriage, of which we have no first-hand notes; the following account is taken with but few modifications, and those mostly verbal, from the Haddon MS. :—

“Polygyny is practised and is only limited by the wealth of the husband. When a man sees a girl that he would like to marry he sends a friend (male) to ask her if she likes him. If she does, she sends word by the friend inviting her lover to her father's house. The suitor then makes it a practice to go each day with four or five friends to the girl's house, and usually stops the night, the father giving them a place to sleep in. The girl's father then asks her why these men are haunting his house, and she tells him: he then speaks to the suitor, telling him the brideprice he requires for his daughter. The girl's

father then sends for the boy's father, and the brideprice is discussed. If the suitor's father cannot afford to pay he tells the girl's father, who forbids the man to visit the girl. If, however, the parents agree, six goats are paid over, followed by six more, and the rest is paid at odd times, or may be all paid at once.

"On the day on which the girl's lower teeth are knocked out, if she was engaged before this ceremony took place, her suitor sends by his friend a bamboo stick, *rer na kiriti*, on which a number of rings, formerly bracelets but nowadays finger-rings, are strung. He also collects milk, and if he can afford it a bull, which are taken to the girl's village. The *rer na kiriti* is placed in the village dancing-place, where it is duly admired. A dance and feast take place, and the iron rings are divided up amongst the unmarried girls of the village and relations of the girl. This is a formal announcement of the betrothal, and participators in the dance are witnesses.

"When the bride-price has been paid—usually the final instalment is in a lump sum—the man can have intercourse with his future wife, but only in her father's house which the young man visits daily: this is not allowed unless the girl has passed the age of puberty. After a month or two the father sends her to her husband's house under the care of some old women, who are smeared with red paint: the husband kills a male goat for the old women, and gives them various small presents.

"A man will sometimes engage to marry a child still unborn if it should be a girl. If the girl dies another girl-child may be substituted, and any contributions already paid are transferred to the new account. . . .

"Quite young girls are engaged and the brideprice handed over, but at the time when their teeth are knocked out the matter is brought up for discussion again, and back payments are counted and finally settled. The reason for this is that it is impossible to know how a young girl will turn out, but when she is old enough to have her teeth taken out her suitor can form some idea of her worth.

"The foregoing is the usual procedure, but other ways are known. A girl may become enamoured of a man and run away to him. He returns her to her home, but if she persists and comes to him time and again, and if her father does not object to the marriage and it is not barred by relationship, they go together to another chief. The parents of course follow the runaway pair, and the matter may be settled up by the chief. The parents return to their homes, and the father of the man brings together the price agreed upon. News is then sent to the chief, who sends men to collect this from the boy's father and take it to the girl's father, who if the amount is correct says so, and the girl is brought to her father's house, a bull being killed to feast the envoys of the chief who brought the brideprice. The girl is then sent by her father with

a present of tobacco to her husband who has also returned to his father's house, and she lives with him.

"If a father notices that a young man is an adept at cultivating, or that his father is a rich man, he may wish him to become a husband to his daughter. The girl hears this and her mother gives her some tobacco which she takes to the man's father. She does this several times, till at last she is asked why. The old men are consulted, a deputation is sent to her father, and the marriage is arranged.

"If a young boy sees a girl whom he would like to marry he tells his uncle or aunt, who speaks to his father, and the matter is arranged with the girl's people.

"A man should not take his wife to his own house till the whole brideprice has been paid and her father gives his consent. This, however, is not the end of his indebtedness, as he continues to make small presents, a sheep or two, every year. This goes on into the second generation, so that even when his daughter is married payment continues to be made to her mother's house, as much as eight cows in the old days. When the husband dies his brother in taking over the wife has to make a further payment to her parents, in fact the brideprice only finishes with the death of the wife provided she has no female children."

The friends mentioned in this account are the age-fellows. The members of the *ber* (age-class) play a considerable part in the arrangements for the betrothal and marriage of one of their number, and a man will seek the advice of his *ber*, who may also be asked to judge the conduct of a wife. Mr. Whitehead gives the following account:—

"First of all when you wish to marry you tell your age-mates saying: 'Brothers, if you see a girl who is good, propose me to her.' And your age-mates say: 'Very well.' Therefore when they have found a certain girl, then they talk with her; and if the girl answers (favourably) forthwith they come and tell you. And you forthwith may go with others of your age-class."

A girl may propose in much the same way:—

"Some girl herself wishes for a man, and she tells her age-mates who are also girls. And she also tells your age-mates who are men, saying 'I want the son of Such-and-such.' And if you like her, you say: 'Very well.' And if you do not want her you say: 'I do not want you.' And so you remain to choose the wife that you do want."

Although it is stated in the Haddon MS. that the bride-price should be paid before the consummation of marriage, it may be doubted whether this rule is more than ideal. Certainly marriages do take place before the whole bride-price is paid.

as will be seen in the examples given below. There seems, however, to be a public payment of part of the bride-price, which may be looked upon as constituting the marriage ceremony.

With regard to the continual indebtedness to the family of the wife we cannot ourselves add any definite information, as our younger informants had not completed the payment of the amount fixed, and our older informant spoke of his bride-price as though the transaction actually were complete. One man, however, volunteered the information that when a man was very pleased he would make much *merissa*, and give a feast to which he would invite his sister's husband and all relatives of the latter, and they would then present him with a cow. Though the initiative here comes from the wife's family, some of the late payments made by a man to his wife's relatives mentioned in the Haddon MS. may refer to this practice.

Mr. Driberg states that a house known as the *kadi na komon* (house of the guests or son-in-laws) is set apart for the bridegroom in the bride's village. When the bride is pregnant she returns to her parents' house. Later the couple will probably settle in the husband's village.

We may now return to the actual amount of the bride-price. In the old days this consisted of many head of cattle.¹ The two following examples are given as indicating the amount paid by chiefs and commoners respectively, though it may also be significant that the chief paid for his bride during the unsettled times of the Dervishes:—

“Laro Lado, a chief known at Mongalla as Suleiman, handed over for his wife Yika 50 head of cattle, 40 goats, and a quantity of dura. Kinyoni, a commoner, paid 40 sheep, while the brideprice of this man's sister, Guni, was 2 cows (which early in 1922 had not actually been handed over) and a number of sheep.”

Analysing, so far as we are able, the payment made by Laro Lado for his wife Yika, we find that one cow and a calf were contributed by the maternal uncle of Laro Lado, this being the customary extent to which a *manange* (maternal uncle) will help his *nörinji* (sister's son).² The bride-price was handed over to the bride's father, Wani, who took the 50 cattle, giving 5 head to his own brother. The bride's mother, Kako, took the 40 goats, which she divided among her brothers, keeping only the dura for herself.

¹ The settling of the number was the occasion of a ceremonial discussion, a special word *pabot* being applied to such argument concerning cattle. Formerly the fathers of boy and girl would probably have been armed and have carried weapons: now they commonly wear a fez.

² If the bridegroom's mother has no uterine brother, someone standing in the relationship of classificatory “brother” would make this contribution towards the dowry of her son. Even if cattle should be scarce, this duty of the mother's brother is remembered; and though payment may be delayed, it is considered due, and in most cases will be made eventually.

When Kinyon married Fani he paid 40 sheep: of these 10 had come to him from the bride-price of his sister Guni for whom only a few sheep were paid, and 30 from the bride-price of another sister, Juan, whose bride-price included two cows. These latter had not been handed over at the time of our visit to Belinian, but Kinyon said that Pitia, husband of his sister Juan, had arranged to do so, and that he would come to Belinian—to which village Kinyon belonged—with a number of his clansmen and bring the cows, when he (Kinyon) would provide quantities of beer for the occasion. Yinkagi, the husband of Guni, had made no further payment for her beyond the first instalment of sheep, hence Kinyon will claim the whole of the bride-price that may be paid for all the daughters of his sister Guni. Had the bride-price been paid in the usual way to Kinyon or his father then when the daughters of Guni married, Kinyon would receive only a share, but what this share would be we could not ascertain: Kinyon said 2 cows, but this may represent only a proportional or conventional share of the bride-price. Since in fact Kinyon will take the whole of the bride-prices of all the daughters of his sister Guni, it follows that their brother Kengi (*nōringi* to Kinyon), the only living son of Guni, will fare badly when he requires cattle to obtain a bride. Kengi was still a boy at the time of our visit, and Kinyon said that he would help to the extent of a cow and a calf, but this is the amount that a man would always give to his sister's son (*nōringi*). We could not discover whether he would assist further (owing to having received the full bride-prices of his sisters), but we think he would probably do so.

The facts we have cited are instructive as showing how long deferred the payment of the full bride-price may be, and indicates that a dearth of cattle extending to the whole tribe does not deter marriage, though it sets up a condition of complicated indebtedness which may last for two or three generations.

With regard to the distribution of the bride-price when it has been paid, Mr. Whitehead writes:—

“Ten head of cattle seems to be the essential complement, but of course rich people pay something over and above this. The 10 cattle are made up as follows:—

- “ (1) A cow and cow-calf. This is the *kiten moken*, and is paid to the mother-in-law. It is the first claim settled.
- “ (2) A cow and bull-calf. This is the *kih n' nopro*, and is paid to the father-in-law.
- “ (3) A bull for breeding. This is the *duöt mōnik*.
- “ (4) A bullock. This is the *duöt sōwō* (pl. *duōnin sōnōlōn*).
- “ (5) A calf, called the *tagrok riket*, ‘the calf of driving away,’ i.e. of driving the other cows to the father-in-law's country.

6. Two calves, *tuqrok wilet*, or *tuqrok na milie*—this means 'the calf of the oath,' it being explained that the parents-in-law may have sworn not to allow their child to marry: when they withdraw their opposition, each is given a calf.

7. A calf, *tuqrok na putet*, or 'calf of the brideprice discussion.' It is paid to the eldest or next brother of the father-in-law.

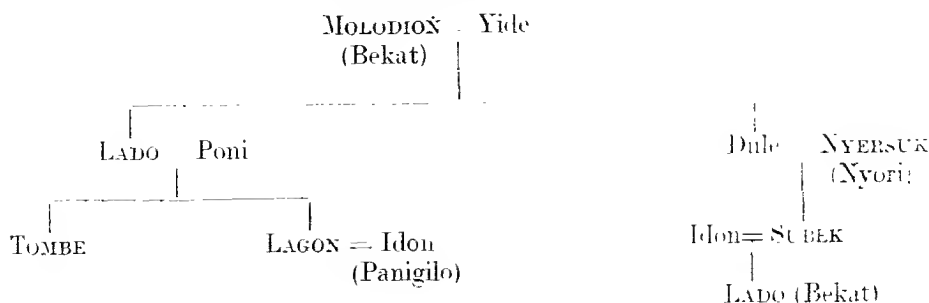
"The phrase *kisuk te ten* includes, I think, all except those under Nos. (1) and (2). It means something like 'cows of the herd.' Some of the cows, though actually the property of the father-in-law, are 'ear-marked' as it were for the bride's brothers, and these are known as *kisuk kölöt*, 'cows which are left to somebody.' The younger brothers of the bride get sheep and goats, as also do the brothers of the father-in-law."

The following is an account of the procedure according to Mr. Whitehead's informants:—

"When Lako wishes to marry, then he calls his brothers to drive the cattle, and his brothers call for the mother-in-law's cow with its offspring a cow-calf, and also call for the father-in-law's cow with its offspring a bull-calf. Therefore forthwith Lako drives (to his father's house) other cows the name of which are *kisuk te ten* (cows of the crowd?) as cows of the children of Lako's father-in-law (i.e. cows to be apportioned to the brothers of the bride). Therefore at that time Lako sends word to his father-in-law saying: 'Baba, our time grows little that we may bring those *torobo* (possessions, chattels, goods, i.e. cows).' So the father-in-law, he cooks much beer, and prepares much tobacco, and hunts for *aroko*. But on the day of the coming of those men there is no *putet* (i.e. discussion). But on the morrow there is *putet*, but when the discussion is over the (strangers or) sons-in-law also kill an ox, so that they may eat their food, because they went in great numbers. [The beer is not enough (?).] So they kill an ox."

Widows are usually taken by the deceased's brothers, though sons who are old enough to marry may take the wives of their father other than their mother. The sister's son sometimes inherits one of the widows. But a widow with a grown son old enough to support her need not remarry if her husband has no surviving brothers, unless she likes to do so. The chief Lagon left seven widows, five of whom became wives of his brother Tombe. One had been betrothed to Lagon when a small child, and the cattle had been paid over, but her father had refused to let her leave home. Tombe looked upon this girl as his legitimate wife, and said he intended to sue the girl's father for her. The seventh widow is Idon, whose remarriage must be considered in detail, since not only does it show that widows can be inherited by the

sister's son, but the social position of the children of Idoñ illustrates the Bari conception of descent and the value of the bride-price.



Idoñ was taken by Subek, her deceased husband's father's sister's son (who among the Bari is addressed by the same term as the sister's son and is thought of as a sister's son). The child of this union was not considered to belong to his real father, Subek, but to Lagon, the deceased husband of his mother, and was considered a member of the latter's clan (Bekat) and not of Nyori the clan of his physiological father. Thus, in spite of the fact that the inheritance of the widow by a sister's son was looked upon as quite legitimate, the children were still considered as belonging to the dead man. They might even marry into the clan of their real father, though not with a close relation of his. The child in question is a boy, Lado, but if Idoñ should bear Subek a girl, the latter's bride-price will be returned to Tombe the direct heir of the dead man.¹ The reason given was that the mother of this hypothetical child had been taken without the payment of a bride-price. Mr. Whitehead was able to confirm the information concerning Subek, and also the explanation given by the Bari that the child belonged to the clan of the man who had originally paid the bride-price for its mother. His verbatim account is as follows:—

“At the time when Logunu died, the people mourned for six months, but in the seventh month Tombe called many people together and said: ‘Brothers Logunu, he is no more. Come that we may go and enquire of those women of his.’ And so the people gathered together. And Tombe spoke first and said: ‘You people of Logunu, my wives, Logunu, he is now no more. Think and then say the children of Logunu are to be supported, and then you are to speak.’ And so those people answered and said: ‘But how are we, Tombe, how are we to speak? We will not go away (or to the forest, *i.e.* out of the clan [?]), because Logunu has left you, Tombe, above (alive). You yourself are to support

¹ This information was given us by Tombe, but Mr. Whitehead says that the bride-price could go to Lado, not Tombe. The difference, however, is immaterial; Tombe would naturally use the cattle coming to him from the daughters of Idoñ for the sons of Idoñ. Whether such cattle would be given direct to Tombe or to the child Lado would probably depend on the age of the latter. The point of importance is that Subek would in no way benefit by the marriage of the daughters of Idoñ.

the children of your brother.' And so Idon also was asked: 'What about you, Idon?' She said: 'My children, they are to be supported by the *ngörinjikö*.' And Tombe said: 'These *ngörinjikö* are now many. You do not speak well.' Therefore she said: 'Subek, he is to look after my children.' Thus Subek came in there. But the children, although Subek begot them, were raised as the children of Logunu, because Subek had not married the mother of Lado with his cows. He came in (to the inheritance) free, *i.e.* without payment."

Several points of interest come out in this account. In the disposal of the widows the upbringing of their children is mentioned as the first consideration: the widows turn to Tombe as responsible and are willing to become his wives; Idon, who is unwilling, mentions at first the clan of the man she wishes to marry, and only later the man's name. Further, Mr. Whitehead was told that "Subek married Idon because he wished to support Idon's children"—there were already two daughters, so he performed a pious duty to the children of his *mananye*.

To form a clear idea of the Bari method of tracing descent and the sociological value of the bride-price, the examples that have been given above must be considered, as well as the information given by Messrs. Driberg and Whitehead concerning inheritance fees. Mr. Driberg states that when a brother of the deceased inherits the widow he pays one cow and one bull (or one cow and ten goats) to the father of the widow or to her nearest relatives, and that subsequent children are then counted to the new husband. Mr. Driberg suggests that this payment is not in the nature of a second bride-price but really a payment for the affiliation of any subsequent children to the inheritor of the wife, for if a sister's son inherits the widow he does not pay anything, but the subsequent children do not belong to him (*see above*, the case of Subek). However, in such cases he states that the same payment is made from the possessions of the deceased to the father of the widow. We did not hear of this custom, and understood that even when a brother inherited the widow the subsequent children were counted to the dead man, as they are among the Dinka. It may be that in those cases that we investigated the inheritance fee had not been paid, so that the new husband may not have been able to claim the children. Mr. Whitehead's information concerning additional payments supports Mr. Driberg's suggestion, for he states that fees may be paid to the parents of the wife on the birth of children (*i.e.* by the first husband, without any question of payment of fees for inheritance of a widow), but that if a man has many children his own father may give cattle to help support them :- -

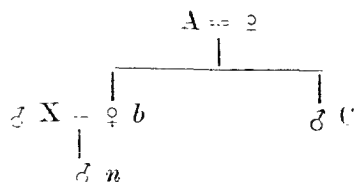
"In the land of the Bari when you have married and when you bring up your first daughter, one cow is taken to the *merenge* [this almost certainly refers to the maternal grandfather], and if the grandfather is dead it is taken to the maternal uncle of this child. And if you beget many children and your

own father exists (is living), he brings cattle so as to support those grand-children of his."

From this account it appears that the paternal grandparents of a child are indebted to its maternal grandparents and maternal uncle, as the child, of course, belongs to the clan of the paternal grandfather. Clan descent is patrilineal, but the sociological father is the person who has paid the bride-price (or on whose account the bride-price has been paid). Therefore the child belongs to the family—hence to the clan of the man who paid the bride-price for the mother, and this with full knowledge of the physiological father in whose household the child may be born and brought up. From the instance quoted among the relatives of Kinyon, it seems clear that the recognition of a bride-price debt is sufficient to attract children to the clan of the father. With Subek, however, the matter was on a different footing: he had no intention of paying a bride-price, and in supporting the children he begat by his wife (as well as her previous children by his *maternal*) he was—as already stated—considered to be performing a pious duty towards his *maternal*.

Inheritance as well as clan descent is patrilineal, but in inheritance, brothers of a suitable age take precedence of sons. When a brother or a son inherits a widow the children are probably only accounted to the dead man if the inheritance fee is not paid, but as this involves no difference in clan membership between the sociological and the physiological father, and very little change in the use of relationship terms and the behaviour that goes with these terms (*see "Relationship"*), the Bari social regulations are here more easily observed in the exception than in the ordinary rule.

Although Bari society is definitely patrilineal, the attachment to the mother's side of the family has been brought forward repeatedly. In the payments that are made habitually we see both matrilineal and patrilineal responsibility. The payment of a cow with calf is definitely regarded as a duty of the maternal uncle: it is quite independent of any special conditions, and may be looked upon as a matrilineal institution. The right of a man to the dowry of his sister's daughter exercised by Kinyon might at first sight be considered to belong to the same category—but this is not the case—it is a special application of the patrilineal principle. In ordinary



practice a girl, *b*, belongs to her father, *A*, who receives cattle for her as a bride-price from *X*: with these cattle, *A* gets a wife for his son *C*. In the instance cited, *X*, the husband of *b* (Guni), has not been able to pay the bride-price, therefore *b*'s daughters, *n*—regarded from the point of view of the cattle that would come in for

them on marriage—still belong to C. their mother's brother, instead of to X. their father.

The payments called "inheritance fees" by Mr. Driberg, as well as that of one cow mentioned in Mr. Whitehead's text (p. 453) as made to the wife's father on the birth of a daughter, point to the need that a man feels to attach his children to himself (and in the case of daughters to retain the bride-price that may accrue to them) and to meet any claim that may be made on them by his wife's family. These payments seem to be evidence that after a girl's marriage her father still believes himself to have some interest in his daughter's children, even though he has received a bride-price for her, a trait which is not strictly matrilineal but yet is not in keeping with patrilineal institutions.

At Belinian the right of a man to have sexual intercourse with the wife of his mother's brother was acknowledged, but was not extended to any other woman addressed as *yakanye*. Though a man had no right to the wives of his *louaserik* (brothers or cousins), trespass would be regarded as relatively venial, leading perhaps to hard words and the payment of a few sheep, but nothing more. A father would not allow his sons to have access to his wives unless he were impotent, then it would come about as a matter of course. At Mongalla all rights of access were denied. We think possibly this denial may be the result of white influence.

With regard to divorce, story No. I (p. 442), concerning the feelings and relationship of mother-in-law and son-in-law, is particularly interesting, as it illustrates not only the normal course of events in divorce, but a special case in which a man, recognizing himself to be guilty, deserted his wife, and his father-in-law was justified in keeping the bride-price though the marriage was considered to be broken. The husband committed the crime of eating food prepared by his mother-in-law, then recognizing his guilt, he returned to his parents, who naturally supposed that his wife or her family had committed some fault which would justify the return of the cattle paid for the bride-price, and only in the end discovered that the husband, not the wife or her family, was to blame.

RELIGION.

We have been unable to formulate any such relatively clear idea of Bari religious beliefs as has been possible, *e.g.* for the Dinka, and it is especially with regard to the god *Ñun*, as opposed to the spirits of the dead, that we have felt the difficulty. This may be due to our lack of knowledge, yet, allowing for this, we do not think the Bari are so intensely religious as the Dinka. *Ñun* is the name given to a super-human power (or possibly, more accurately, powers), and certain big trees, not all of one species, are—perhaps temporarily—one of the habitations of *Ñun*. The big tree in the rest-house enclosure at Ali Bey is of this class. We saw small pieces of tobacco thrust into cracks in its bark, and were told that at night *Ñun* would

come and taste thereof: so, too, blood and fat might be smeared on this tree. The anointing of certain big trees with fat, accompanied by prayer, at the time that the dura is planted has, we believe, reference to Nun. Nun-loki (sometimes Nun-ki), equivalent to "Nun-in-the-above," *i.e.* the sky, and Nun-lukak (Nun-kak), signifying "Nun below," appeared sometimes to be synonyms of Nun in different aspects, at others they seemed to indicate different personalities. Nun-loki, in our limited experience, appeared more important and bulked more largely than Nun-lukak. With Nun-loki there is associated rain and lightning, and it was said that a rain-maker, though he would certainly seek the aid of his ancestors, might perhaps appeal to Nun-loki (who is in the sky). Again, it was said that a sacrifice might be offered to Nun to cure sickness, the accompanying prayer being on the lines of "What have I done? Why are my children sick?"—though here again the regular treatment would be sacrifice and prayer to an ancestor or ancestors. Mr. Driberg points out that though Nun-loki is in the main benevolent, he may kill when he thinks that a person has lived long enough: and also that there is yet another Nun, or manifestation of Nun, Nun lo-muding.

Concerning Nun-lukak, Mr. Driberg gives the following information:—

"Nun-lukak, *i.e.* 'Nun below or of the earth,' also called Nun lele, 'the other Nun,' is a younger brother of Nun-loki and subordinate to him, neither benevolent nor malevolent. Nun-lukak is responsible for cultivation, and prayers relative to cultivation are addressed to him. He is accordingly also known as *mulakatyo lo kinyo*, 'the spirit of food,' and is also called *mulakatyo lukak*."

The following is in the main Mr. Driberg's account of Nun lo-muding, *i.e.* "Nun of the wilderness," or of "the bush," more generally known as *mulakatio* (pl. *mulaka*), the ordinary word for spirit or soul, and commonly applied to the spirits of dead men, *i.e.* ghosts¹.—Everything animate or inanimate (including trees, hills, etc.) possesses a *mulakatio* which survives death, and in the case of man frequents the bush, but also haunts the grave or vicinity of the deceased. Certain big trees called *kaduni lo mulakatyo*, or more rarely *lo Nun*, are the habitations of Nun lo-muding or *mulakatyo*. No use can be made of these sacred trees, and even when they fall down and die their wood cannot be used for fuel, nor may anyone go under them, except for the purpose of sacrifice or offering. Such trees are of different species, but figs and "wild olives" predominate for the reason that they are not planted. A young shoot growing fortuitously near a grave is not on that account sacred; only when it has become a big tree the *burit* (medicine-man) may discover by divination that it is occupied by the *mulakatyo* of the dead person buried there, and informs his descendants, from which time the tree becomes sacred.

¹ Among the Kuku I. Vanden Plas gives Uletet as "God" (*Lo Kuku*, Brussels, 1910, p. 277), and also as "the spirits of the dead" (p. 280).

Stigand discovered the existence of such trees among the Kuku. Close to the old Dufile and Nimule road there is "a shady grove of trees in a clump of thick undergrowth. This is one of the Kuku sacred groves, called Rudu, and belongs to Kajo Kaji whilst, a little further on, there is one belonging to Yonguli. It is forbidden to cut the trees or undergrowth of these groves, and nobody but the authorized priests is allowed to enter. There is a superstition that if any others enter they will become sterile, whether man or woman. Kajo Kaji's father is buried in the grove, and Kajo Kaji himself will be when he dies. Sacrifices are made at the spot on such occasions as a severe drought.

At Bulamatari's there is no grove, but a solitary tree which fulfils the same function. An old man, whose office is hereditary, performs the sacrifice, slaughtering a goat under this tree, and then taking it to a second tree a little way off, at which a libation of blood and offal is poured out. Here, they say, a chief would be buried, unless he died of wounds, in which case he would be buried in his village."¹

The *molaka* take a benevolent interest in the descendants of the dead, but if treated carelessly they cause disease or death of human beings or stock (in order to draw attention to the fact that they have been neglected), while, if well looked after, they will avert sickness and ensure good harvests and rain.

Mr. Driberg agrees with us that it is impossible to draw any clear distinction between certain aspects of Nun and the *molaka*, though clearly Nun, as generally used, connotes rather "god" than "spirit" or "ghost." The alternative titles, if we have understood them aright, show that there is great confusion, so that the nature and functions of these entities are best understood by a consideration of the festivals at which they are propitiated.

The word *kudulwe* signifies shade, shadow, ghost of animate beings, while *tilimut* is applied to the shadow of inanimate objects and carries no ghostly significance. Mr. Driberg suggests that the article *lo* appears to indicate that all *nun* and *molaka* are regarded as of the male sex, even if the *molakatyo* be that of a dead woman.

As already stated, illness (apart from that caused by sorcery) is so generally regarded as due to the neglect and consequent anger of a dead ancestor that the cult of the dead plays a considerable part in the life of the Bari, and every grave is a potential shrine. It is not then surprising that the cure of disease due to neglect of an ancestor—who in practice is generally the father—consists of sacrifice at the grave, followed by the erection of certain objects, varying in different instances, usually at the head of the grave, which, if they do not make the grave any holier to the native, to the European certainly emphasize its quality of a shrine. A good example of such a grave-shrine, in the village of Ali Bey, is shown in Fig. 4

¹ C. H. Stigand, *Equatoria*, 1923, p. 74. Nor are such groves limited to the Bari-speaking tribes, for the Madi immediately to the south of the Kuku, who, like the latter, use old quartz lip-ornaments as rain-stones (some actually brought from the Bari), call *rudu* the groves in which their rain-makers are buried (F. H. Rogers, *Man*, 58, 1927).

of Pl. XLV. and somewhat diagrammatically, but in more detail, in Text-fig. 1. It stands immediately in front of the house of the dead man, and consists of two notched stakes to which are tied a long peeled stick, and a young tree to which are hung many small pieces of iron slag. At the foot of the stakes there is a pot in which part of the last sacrifice was left, and two groups of cooking-stones, *salese*, indicating that two sacrifices have been made. The stones used in the earlier sacrifice are those nearer the stake and overgrown with grass, which had been left undisturbed purposely, although the rest of the ground over and round the grave was kept particularly clean. As to the notched stakes, one is no doubt the stake called *feiti*, since it is made of "ebony" (*feiti*), which constitutes part of the furnishing of every grave. The other notched stake was called *gili*, because made of *gili* wood. The *gili* is the commonest of the objects which the *bunit* commands to be erected on the grave to placate the *mulaka*, yet a notched stake need not be of *gili* wood: the *bunit* determines that, while he may, or more generally does not, order a stone to be placed at the base of the notched stake. Such stones as those shown in Mr. Whitehead's photograph (Pl. XLVI. fig. 1) are called *hurupitö ti bunit*, "the stones of the *bunit*."

When a *gili* or a similar stake is erected, the hole in which it is stepped is, or should be, dug by the son of a sister of the dead man as nearly as possible over the head of the latter, and thus in practice often immediately at the side of, or even touching, the *feiti* stake, as in the text-figure. In one instance seen by Mr. Driberg, the objects on the grave consisted of a *feiti* around which were sets of stones consisting of the *salese* set up and used at succeeding sacrifices.

Pieces of slag suspended to branches of the tree were noted at several shrines. We did not discover their purpose, but in one instance, in which leaves were suspended in the same way, it was said that as the wind blew these about so would the sickness be blown away.

We are indebted to Mr. Driberg for the following account of the main features of a sacrifice for sickness at the grave of a father:—"The son consults a *bunit* and then, having collected any surviving contemporaries of his father—*i. e.* no doubt, his father's age-mates—brings a bull near to his father's grave. He then addresses the *mulaka*, saying that he regrets having neglected his food, and adjuring both *Nun-loki* and *Nun-lokak* to observe that the *mulaka* is now being fed, commands the bull to urinate. If it does not it is obviously too small, so, apologizing to the *mulaka*, the man brings another and bigger bull, as the *mulaka* has refused the other. Eventually a bull is found which consents to urinate, and on its doing so a *dapiet* is at once sent to arrange for its slaughter under the spirit-tree.¹ The bull is taken there and sacrificed, and the tree and the *salese* under it are smeared with blood, stomach contents, and fat, as are the *feiti* and presumably other stakes erected at the grave, where apparently some of the mixture is poured out. The meat is divided

¹ These are the big trees such as those referred to on pp. 445, 456, concerning which we know so little.

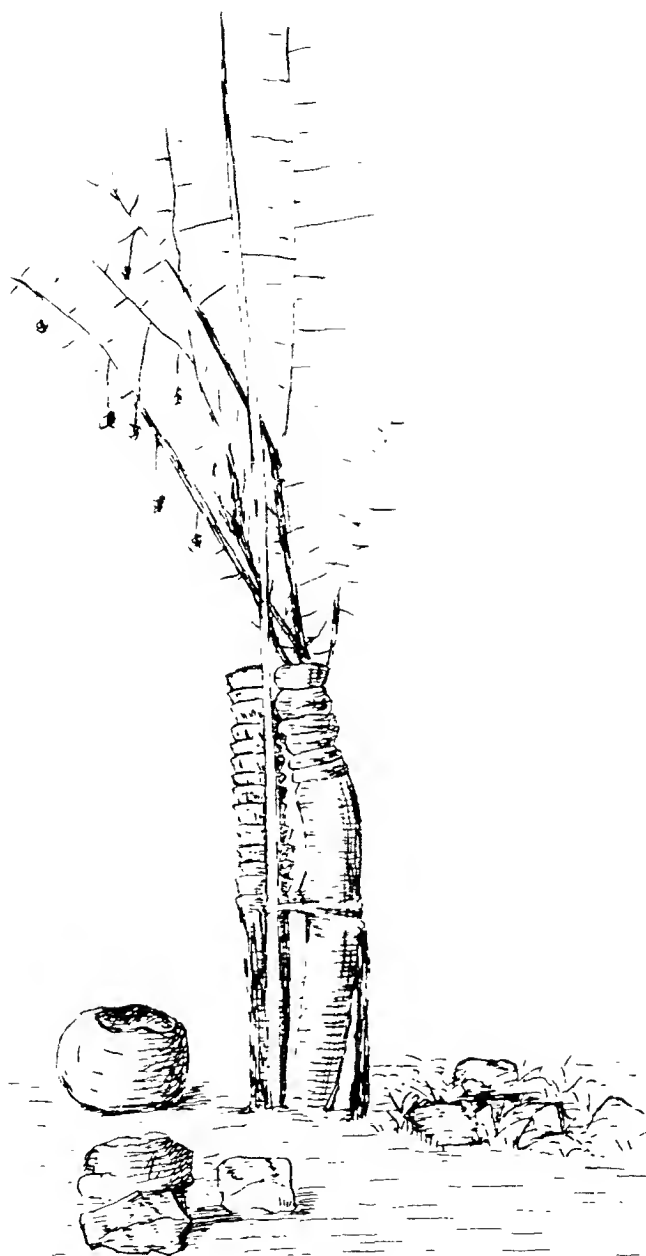


FIG. 1.—GRAVE-SHRINE AT ALI BEY.

among those present, part being the perquisite of the *dupiet*. At night, when all is finished, the *dupiet* takes curdled milk and smears it on the *salesc* under the big tree and anoints his own body while standing under the latter."

We may note that the sacrifice may be tied to the notched stake (*gili*), but that this is probably rather unusual, and depends on the *bunit*, though the animal is generally led round the stake.

The *gili* is annointed with the blood and fat of the sacrifice, or, if no sacrifice is made—i.e. the case is not considered to be sufficiently serious—milk may be poured out at the base of the *gili*. When a man moves to a new site, he may erect a new *gili* in front of his new house, to avert a recurrence of the disease for which a *gili* had been erected at the grave associated with his old home. The *bunit* does not always order the erection of a stake (which we believe to be generally associated with animal sacrifice), but may order a patient to grow a particular kind of "grass" or a flowering plant in a pot near his house.

Mr. Driberg writes that when disease threatens to become epidemic, the local *natu duma*, or perhaps even the rain-maker, goes to the *bunit* with a present of a goat. The *bunit* refers him to the *mongekak*, who demands a cow, or a cow and calf, as a present, and, having received this, obtains "medicine" from his *bunit*.¹ His *dupi* now scatter this throughout the affected area, receiving for their services a goat, a fowl, and a hoe and some porridge. Neighbouring areas will also probably send animals and be given the "medicine" to be used prophylactically. No mention is made of a sacrifice, but it is to be presumed that one or more beasts are killed. In the event of a serious epidemic the *mongekak*, at the advice of his *bunit*, orders all fires to be extinguished, and then makes new fire in his house, which he distributes to all without fee.

Although, as we have pointed out, illness, if serious, is regarded as the result either of sorcery or of neglect of ancestral spirits, we may suggest that further investigation will show that these factors do not cover the whole ætiology of disease from the Bari standpoint. Pains in the limbs, such as among ourselves might be termed "rheumatic," are often treated by the wearing of an iron bracelet or a long piece of iron which might almost be called a shin-guard. In one instance, pain in the chest was treated without sacrifice by the wearing of shell beads round the right ankle and a bracelet round the right wrist. No doubt the assumption of these, which was at the advice of the *bunit*, was accompanied by prayer or invocation, but we have no record of these.

We add here the accounts of three ceremonies (for which we are indebted to Mr. Driberg), since, as it seems to us, there is probably a magico-religious background to them all: indeed, their form suggests that further investigation will

¹ Whether more than one *bunit* is concerned here is not clear. Though the further treatment appears to be stereotyped, it is the *bunit* upon whom falls the responsibility of determining when it shall be applied.

show that they are associated with the cult of the dead. The first two ceremonies, both festivals, are called *rubanga lo kingo*, "the feast of food," and are connected with the planting and harvesting of the crops respectively:—

(1) At the planting festival, a goat is killed and its meat is cooked with beans, sesame, and porridge at a *salese* near the granary called *salese ti rubanga ti kingo*, "the cooking-stones of the festival of food," which is not used except for sacrifices and feasts concerned with cultivation. The head of the family assembles his people, and after the food is cooked he waves it in the air three times, blowing on it, and giving each person a small piece, which is put in the mouth and spat out. Each then receives a larger piece which is eaten. There can be no cultivation without this ceremony. The wooden supports of the granary are smeared with sesame oil, but the sacred tree (if there is one) would not be anointed.

(2) An alternative title for the festival held when the harvest is ripe is *rubanga lo bolot*, "the feast of grain." No grain may be eaten before this festival. Ten heads of dura are collected, and the head of the family, standing before the cultivation *salese*, waves the cooked grain three times in the air. Each person is given a little and spits it out, this being done five times, while the sixth portion is swallowed.

(3) The third ceremony is the *rubanga lo ki'shak*, the "festival of the cattle," which appears to be a thank-offering for success with the herd. An owner of cattle, if they are breeding well and calves are numerous, collects milk and holds this festival. Special *salese* (*salese ti kisak*), which may not be removed nor used for any other object, are placed near the fence of the homestead. The neighbours are invited, and a large pot half-full of milk is put on the fire at the *salese ti kisak*, dura flour being added and cooked in the milk. The pot is not removed from the fire, but each person takes out a handful, puts it in his mouth, and goes home without speaking. The stick used for mixing the dura and milk is not cleaned, but is placed in the roof of the calves' house with the porridge adhering to it, nor may it be removed. If the owner of the cattle wishes to ensure their future health he should, in addition, consult the *bunit*, who will tell him to do this or that (*e.g.* put up a potsherd near his wife's house), while he should also sacrifice a bullock at the *kadimi lo mulakatgo*, his spirit-tree.

We may further note that if cattle are infected with serious disease, perhaps even if only one valuable animal is ill, a sacrifice will be made, and we were shown *gili* which had been erected at the advice of the *bunit* as part of the cure. Mr. Driberg informs us that the *bunit* will usually tell the owner to take a cow to the *monyekak*, who may refer the matter back to the *bunit*: the latter then probably tells the owner to sacrifice at his spirit-tree and to call all the old men of his family to eat of the meat. This should stay the disease, while others fearing disease in their herds will

do the same at their spirit-trees. On the other hand, the *mongekuk* may tell the owner of the cattle that he must break up his herd, distributing it over different parts of the country, and that he must shut up and abandon his kraal for one month, or for as long a period as the *bunt* decides, the latter probably advising the abandonment of the kraal until the rains break, and generally advising that a cow be given to the rain-maker with the request that he bring the rain early.

Under the heading Religion should provisionally be grouped information given us by Mr. Whitehead concerning certain snakes termed *yakanye*. Generally this term means "grandmother" (*supra*, p. 438), and its application to a snake immediately suggests such totemic beliefs as those of the Dinka. According to Mr. Whitehead, it is applied to a snake which occasionally enters a hut, when it is received with great delight and sprinkled with milk. It is considered to be "the child of God," sent as a sign of good fortune. All this would apply well to totemism, but Mr. Whitehead thinks that if this ritual had been limited to a particular clan his informant would, as in other instances, have told him so. Be this as it may, his point of view is supported by Mr. Driberg's statement that among the Kakwa and Lughware the *yakanye* snake *nexus*, is not clan but tribal, while among some of the non-Bari-speaking tribes of the Bahr el-Ghazal there is, or was, a Yakanye secret society.

RAIN-MAKING.

A number of accounts of rain-making already exist; they differ greatly among themselves, and in certain respects all differ from the accounts given to us. Doubtless none are complete: in what follows we give what we believe to be an outline of the ceremonial followed, but neither do we claim that our account is complete, nor are we confident that the parts of the ceremony follow in the order given. It was always extremely difficult to get details of a ceremony in correct sequence, nor do we think that this was entirely due to difficulties in translation, but was at least in part psychological, a portion of a ceremony appearing so much the most important to our informants (necessarily limited in number in the case of rain-making) that whatever questions were asked they invariably returned to this particular feature. As to the position of the rain-maker, since he might be killed if he would not, or could not, produce rain, it is evident that he occupies a very different position from that of a Shilluk or Dinka rain-maker in whom is immanent a great ancestral spirit. On the other hand, the Bari rain-maker is more than a departmental expert, for although the most striking of the results of his actions is the production of rain, the ceremonial he performs is thought to bring every kind of prosperity on the country. His ability to produce these results is due to the correct manipulation of certain objects (especially the rainstones), backed by the power and willingness to assist of the spirits of the rain-maker's father and remoter ancestors, moved thereto by the prayers of their descendant. The rain-maker is assisted by his *dupi*, and we

formed the opinion that the procedure was more or less well known to a not inconsiderable number of the Bekat clan.

Commenting on the all-round beneficial effects of the rain-making ceremony, Mr. Whitehead points out that the whole ceremony is to ensure fertility and banish disease and want, citing the instructions the rain-maker Pitia would give his *dupiet* when he sends him to a distant village to act for him: "Make that water (come) so that it may fall, so that these people may cultivate, so that also their durra may ripen, so that these people may be contented, so that the people may bear and produce and their wombs grow large."

Our own information applies only to the Bari of the eastern bank, among whom there are, or were, two rain-making centres, Belinian and Shindirru, each with its own rain-maker.

Of the objects concerned in rain-making there can be no doubt that certain stones, generally of quartz, are the most important though certain sacred spears

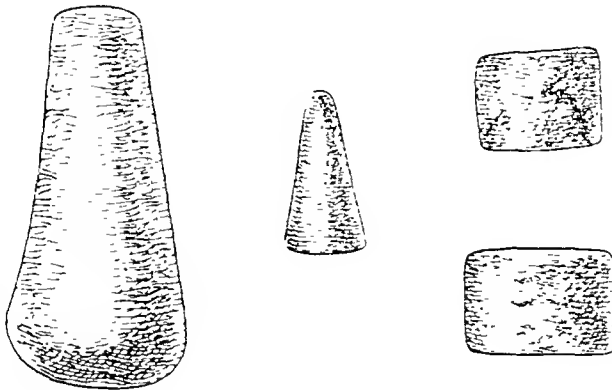


FIG. 2 —QUARTZ RAINSTONES. (SCALE :)

seem also to play a part in the ceremonies (although we were never fully able to determine precisely what this might be, unless indeed they were merely insignia of office). Of the attitude of the natives to the pieces of quartz which from now on we shall speak of as rainstones, we had an early opportunity of judging, when one of us showed a "chief" and some old men of the Bekat clan the stones, said to be of Bari origin, which Mr. Driberg had taken from the Lugbware some years previously. These were four pieces of worked quartz—old lip-plugs—of which drawings (actual size) are given in Text-fig. 2. The two conical stones were considered as male and the cylindrical as female, the larger of the latter being regarded as the most potent, and it was pointed out that when taken in the hand and held close to the ear it "called out."¹ This stone, though not transparent, was clearer than the others,

¹ We can elicit no sound on holding this stone against the ear, whether the hand be hot or cold.


while the minute pits on the surface of the two male stones showed the remains of red paint. Although all four stones are evident artifacts and three of them obvious lip-plugs, even if the fourth be too large for this purpose, not one of our informants considered them other than natural—a matter of some interest since some at least must have seen members of neighbouring tribes wearing quartz or glass “pencils” in their lower lip, and the smallest “male” stone is obviously one of these, though rather stumplier than those we noticed in use. As already stated, the old men to whom these stones were shown with a certain amount of secrecy were greatly impressed; some of them took the female stones and passed them over their eyes later asking whether I [C. G. S.] was not really of the Bekat clan [and so, at least potentially, a rain-maker] in my own land? At this point it may be convenient, both as substantiating our statement that a good deal about rain-making is general knowledge, and as indicating roughly the part played by the rainstones, to quote a short account of rain-making obtained in Mongalla from a local informant who was certainly no rain-maker, though whether or no he was of the Bekat clan we cannot say:—

“The rain-maker has certain green and white stones in a pot. He washes these with water and places them on a big stone [one of the old grindstones to be referred to later]. He smears the rainstones with simsin oil, he sacrifices a black goat near the stone, then he, his assistants, and ‘all’ the old men eat of this and the rain comes.”


This version has the advantage, when contrasted with the more extended account given below—itself incomplete—of exemplifying the sort of information that is likely to be missed if an attempt be not made to visit the actual sites concerned as well as the sort of detail which is so obvious to a native that he does not think it worthy of special mention: we refer specifically to the prayers to the ancestral spirits, and the performance of the ceremony at the graves of the rain-maker’s ancestors.

Bringing together our own information, that contributed by Mr. Driberg, and the publications of previous observers, including material in the Haddon MS., we would suggest that the rain-making process is on the following lines: When rain is required everyone, including the *mongekak*, brings a black cow, a black goat, or a hoe (according to his wealth) to the rain-maker. The rain-maker having sacrificed one of these animals—a sacrifice of one of his own would be fruitless—sends his *dupi* to each of his ancestral spirit-trees, including trees of all previous rain-makers of his family, and they anoint the trees with the stomach-contents and fat of the sacrifice whose flesh they eat. Later the people come to the rain-maker and stand facing him; then, when his *dupi* have brought water from the river, he commands them to race away from him, the *dupi* pour water over their feet, and each person goes back to his home without looking back, for if anyone did so no rain would fall. Presumably

this takes place outside the rain-maker's hut. This part of the ceremony is apparently referred to in the following passage given Mr. Whitehead at Lomurie: "When the sun has shone strongly, people go to the chief, some ten to Igbola, other ten to Rowat. When they have gone they sweep the enclosure of the chief, and Rowat brings water and says: 'Go.' And he spills the water upon them and: 'The rain will soon fall.' And Igbola brings water in a gourd, moistens the people with water, saying 'Go, soon it falls.'"

At some time soon after this the rainstones are brought into action. The following notes apply specifically to Belinian, for, as will be seen later, Mr. Spire's account of what he was shown at Shindirru suggests that the practice in the two places varied considerably. We understood that the rainstones would first be anointed and prayed over in the rain-maker's hut, and it was only if this did not produce rain that resort would be made to the grave of the rain-maker's father; if still no rain fell, then sacrifice was made at the grave of Jada, a previous rain-maker of great power and, according to one account, the founder of the Bekat clan.¹ We do not however wish to lay stress on the ceremony in the rain-maker's hut or its immediate neighbourhood: we regard the confirmation or rejection of this as a matter for future observers: if it took place, then the technique was very much that already recorded as given us at Mongalla, with the addition that the stones were smeared with the fat and stomach-contents of the sacrifice. Our actual experience with regard to the rainstones kept in the rain-maker's hut was as follows: The man put forward as rain-maker was called Ali Bey, and was said to be no relation to Molodion who had been deposed from office, although he was the brother of the old rain-maker Bombe, mentioned in the Haddon MS. It has since seemed probable that this man was not really the rain-maker but one of his *dapi*, but in this account we shall speak of him as the rain-maker. He took us into a hut said to be his (the rain-maker's), and brought down from the roof a pot full of stones which were almost entirely fragments of quartz or pebbles, but among which was one object, presumably of glass, though it mimicked the opacity of the quartz fragments precisely, shaped like the bottom of a custard glass, thick and heavy with engraved geometrical designs, a central circle, and a flower-like design  in rows round it. We were allowed, but not encouraged, to examine these stones in the dusk of the hut: we

¹ Experience suggests that in the Sudan there is usually little historical validity in such claims. "Founder" usually means no more than the last great rain-maker of whom there is a vivid clan memory: Nyakang of the Shilluk is, we believe, an exception. It is not improbable that Jada may be the "old sheik" of this name, "about two miles from Belinian mountain," with whom Baker made friends. Baker describes him as about eighty, and as leaving arrangements to his "exceedingly clever sister," who "became extremely active and ran about the country to collect the principal headmen" (*Ismailia*, p. 160). The position described is such as might have arisen a few years ago among the Lotuko, where Ikang, herself a rain-maker and the widow of three rain-makers, was far more active and energetic than her colleague and brother-in-law Loinyong, the acknowledged chief and rain-maker of the Tarangole community.

were asked not to take them outside. We were told that the sacred spears of which we had heard were not there, but after some persuasion we were taken into another hut and shown two, said to be the rain-spears. Like most Bari spears they were rather small-bladed, but—and this is uncommon—each had a barb on each side above the blade, their sockets being not unusual in form. Above the socket of each, its lower end overlapping the top of the socket and gripping it firmly, was a length of metal (apparently iron) tubing with a simple wave design, thus  in brass (?) inlaid in the metal, the whole appearing relatively old and patinated. There were three of these wave designs we think on the circumference of each spear, but in the faint light it was not easy to be certain. The hafts of these spears, for which we could elicit no special name, were of wood, perhaps about 8 feet long, and presented no obvious peculiarities. It was said that the blades of these spears were treated in the same way as the rainstones, washed, smeared with oil and intestinal contents and blood of the sacrifice, and then stood point down in the pot containing the anointed stones, their shafts leaning against the wall of the hut. It is obvious that the origin of these spears requires further investigation as well as the part they play in the rain-making ceremony.

The rainstones turned out of the pot for our inspection were clean and dry, so that there seems no reason to doubt the truth of what we were told, that after use the stones were washed and returned to the pot in the rain-maker's hut, where they remained until next season.

Turning to the sacrifice for rain that undoubtedly went on at the grave of the rain-maker's father, Fig. 2 of Pl. XLVI shows the shrine as it appeared early in 1922, while Fig. 3 shows the rainstones lying within the hollow of the old grindstone¹ at the foot of the *feiti*, which is of unusual height. Round the grindstone are a considerable number of other stones all said to be old cooking-stones (*salese*), and the usual group of three of these can be made out in the foreground. It will be noted that although the grave had not been kept rigorously clean, no such growth of grass has been permitted over the grave, as is seen in the photograph on the far side of the track. The quartz fragments in the hollow of the large stone were rough and angular, except for one pebble the size of a small hen-egg. It is to be presumed that the rainstones from the rain-maker's hut were brought here at the time of the ceremony, which consisted of sacrificing a black goat or other animal and washing and anointing the stones in the manner already described. The following translation of a text collected by Mr. Whitehead, apparently at Lomurie, throws additional light on this part of the ceremony:—"There are stones; their names are Kuduut. When the sun has shone strongly a sheep is brought, and is cut, and its stomach-

¹ Concerning such old grindstones, Mr. Whitehead writes that they are called *ginda* (pl. *gbu'dalan*). "*Gbada a kijo nagon pele a najo, na beror, na nuta ti belad; gwe a nagbala.*"—"The *gbu'da* is a grindstone whose hollow is large, of long ago, of the people of the *belad*. It has become deep." *Belad* is the common Sudan Arab word for "district," "country."

contents wash, or cleanse, Kuduat : and then (it is or they are) put to dry in the sun. When the sun is here (*i.e.* somewhere early in the morning) they are then smeared with simsim oil, and then when the sun has reached to over there (*i.e.* sunset) the rain falls."

We understood that the rainstones would be left in position in the hollow of the grindstone until the harvest had been gathered.

The grave of Jada (referred to on p. 465) and its immediate surroundings are shown in Fig. 4 of Pl. XLVI. There was no *feitu* or *guli*, but the piece of dried wood was said to mark the head of the grave, while near it was the grindstone containing four stones, three not of quartz (shown in Fig. 1 of Pl. XLVII), yet said to be rainstones of great potency. We were allowed to examine these and arrange them on the edge of the durra stone to be photographed. They consist of half of a bored-spheroidal stone of considerable size, resembling a Bushman's digging-stick weight, an artificially bored stone, an irregular mass of quartz with crystals springing from the matrix, and a pebble of a stone we did not recognize. Presumably the big tree in the background of Fig. 4 of Pl. XLVI is a spirit-tree, but we unfortunately did not inquire into this. A good many of the stones round the grave of Jada were no doubt *salese* (cooking-stones), and we were repeatedly assured that it was here at the foot of Belinian hill that the rain ceremony was performed as a last resource.

Mr. Driberg informs us that when the crops are partially ripe the rain-maker, without further fee, sends his *dupi* all over the country, and they scatter medicine in every garden. In each area the *nota dama* gives the *dupiet* a goat, which is eaten with a head of durra from every garden, collected in return for the "medicine."

Mr. Whitehead gives the following accounts of a rain-maker's directions to his *dupiet* :—

"You are to go over there : you are to go to the *bómanu* over there ; you are to go and make the rain fall, and when you have made the rain fall you are to rise up, and you are to go away.

"And you call for a sheep, and you treat that village with the spear (*lori*), you smear (it ? or them ?) so that their bodies may become good, so that illness may not be. And you put those waters within (what ?), and you rub (presumably the stones) with grease, and it (the rain) falls, and when it falls it stops, and the people go to hoe their durra, and you the chief leave the village."

Again the rain-maker :—

"Pitia says : 'Go there, Lako,' and when you go the *bómanu* welcome you with shrill cries. . . .

"[Directions to the *bómanu*.] Bring a large sheep, so that his people (*i.e.* of the visiting *dupiet*) can cut the large sheep, and when you have brought the sheep you will then collect and bring the meat stews and forthwith you

dance, and you pray the chief [in this instance the *dupiet*, representing the rain-maker]. And when you pray the chief you dance, and then forthwith you bring beer, and when you have brought beer then you bring grease, and you rub the chief so that he gives you food, and you beg the chief that he may lie on the ground and sleep, and the rain comes, and falls and next morning the people go to hoe, and the chief leaves the village."

As to the rainstones themselves, they may be old quartz labrets (or lip-plugs), or artifacts of a green stone, possibly green garnet, though one greenish specimen which we have handled suggested quartz with green staining of varying depths; or they may be pebbles with natural "eye" markings, but with artificial perforations (Pl. XLVII, fig. 2). All these specimens are small, but besides these there are irregular pieces of quartz, stones presenting no ready basis for classification, and the half of an old digging-stick weight of Bushman type already referred to. As previously stated, many, if not all, of the rainstones are supposed to possess sex, *i.e.* to be either male or female: but, apart from an obvious, if vague, relationship between the stones and ancestral spirits, individual stones are in some way equated with particular persons or, more probably, with their spirits. Thus Mr. Whitehead cites the instance of the sons or *dupi* of Pitia Lugar coming to Narjua and bringing with them five or six stones: two, flat and black, were female; two, round and perhaps bluish (*lotulurak ko lomurie*), were male; and the remaining stone or stones were *dupi*; if two in number, then, respectively, for a male and female *dupiet*. Further, certain groups have collective names, *e.g.* those at Lomurie are called Kuduat, and those belonging to Pitia Lugar are known collectively as *dikolo* (clouds). Ordinary people (*bóman*) only see them at the time of the ceremony, for they are bad for the eyes; this, at any rate, was the reason given at Lomurie to Mr. Whitehead for not showing them to him, and the bleared eyes of the rain-maker were indicated as a proof of the truth of this belief.

THE RAIN-SHRINE AT SHINDIRRU.

The above includes all the information of value we were able to obtain, but more than twenty years ago Mr. F. Spire published a most important account of rain-making at Shindirru, with which he now allows us to reproduce his hitherto unpublished photograph of the shrine. He states that Leju, the rain-maker of Shindirru, is the hereditary "chief rain-maker" of the Bari, and that his village is situated at the top of the hill¹

"Ledju and his assistants had long hair, unusual among Bari. Between a hut and village wall was a miniature enclosure about 10 feet in diameter. This enclosure contained most of the strange implements used by the rain-

¹ F. Spire, "Rain-making in Equatorial Africa," *Journal of the African Society*, 1905.

makers. Arranged on the ground within the enclosure were some 20 old grind-stones. The hollow of each contained from 2 to 8 pieces of rock crystal and granite, the latter in two colours, pink and green, and both circular and conical in shape. A number of small earthen pots, capable of holding about 1 pint, were filled with water and placed near the 'nests.' Laid across these hollow stones or nests were numerous iron rods varying in size and shape . . . [Ledju] now explained . . . when rain is required by . . . a neighbouring village, a deputation generally consisting of the village headman and some two or three elders waits upon . . . [him] . . . and begs him to give them rain for their crops. The request is accompanied with a present or fee in the form of chickens, sheep, or goats, according to the means of the parties requiring rain. One or more of these animals are forthwith killed and eaten by the party, the rain-makers consuming the larger share. The feast over, the three assistant rain-makers proceed to the enclosure and first remove the iron rods, placing them in a perpendicular position by leaning them against a thin line made from the bark of a tree and stretched more or less taut across the enclosure and tied to stakes in the thorn wall of the small enclosure. They then wash the stones and crystals with water from the small earthenware pots and replace them in their respective nests.

"Each assistant has his own special set of nests which are under his individual care and are known to him by various names (names of former rain-makers or members of their families). On the completion of this ceremony by the assistants . . . [Ledju] appears upon the scene with a small pot of fat or vegetable oil, extracted from the semsem seed or ground nut.

"[Ledju] . . . having first placed himself in a squatting posture near the nests, pours a little of the oil into the palm of his left hand, then, placing the oil-pot on the ground before him, rubs his hands together, then takes up the stones one by one from their nests, rubs them with the oil on his hands, at the same time chanting or mumbling to himself words to the following effect :--

" Oh, the rain must come ! Oh my father, send the rain ! Send the rain ! Send the rain ! You were in your day a mighty rain-maker : many people believed in your power, brought you many goats and sheep and you became rich. Your flocks were as numerous as the grass which now covers the surface of these lands. Now you are dead : and I am left to make rain in your stead ! Oh, send the rain ! Send the rain ! "

"Numerous iron rods are also brought into requisition, notably one with a hooked end used by Ledju to draw the rain clouds in any desired direction, and a two-headed spear used in attacking hostile rain clouds !

"Ledju took the crooked rod, and holding it above his head at arm's length at a slight angle, and with the hook pointing in the direction of the rain cloud he wishes to attract, he is supposed to draw the cloud towards

him by working his arm up and down. When attacking a hostile cloud the chief seizes the rod in much the same manner as that adopted by natives in ordinary warfare. He then prances about, gesticulating violently and giving vent in a loud voice to some strange words, fighting the troublesome rain cloud!

"In the immediate vicinity of the chief's village there are several fair-sized trees, with one end of ropes (made from wild creepers) fastened to some of their lower branches, and the other end pinned to the ground by small wooden pegs. When rain is required (and provided the appearance of the sky favours an almost immediate downpour, and there is consequently no time for the stone-oiling process), the rain-makers proceed to one or more of these trees and pull at the ropes, so causing the branches to sway in the direction they wish the rain to fall. Their wishes invariably coincide with the apparent course of the rain cloud. Applications for rain are only made in the wet season. The natives have the greatest confidence in the rain-maker's powers at this season, but candidly admit their disbelief in him at any other time.

" . . . Before leaving the vicinity of the 'nests,' in reply to a question, Ledju informed me that I was the only white man who had ever seen his rain-making implements, and that strangers, including blacks, were not permitted to view the implements, but I, being his 'father,' he had made an exception in my case . . . Ledju added that I must, however, allow him to make 'medicine' for my eyes after witnessing such a wonderful sight! On my consenting to this arrangement, I was requested to stand in front of the chief with closed eyes. I accordingly, to all appearances, obeyed. The chief waved his open hands in front of my eyes, at the same time muttering in a low voice some strange-sounding words, then assured me that all was well. I was able to watch his movements, as I did not quite close my eyes. Ledju is also supposed to possess other extraordinary powers besides those of a rain-maker. He showed me an iron rod about 3 feet long and about 1 inch in diameter with a kind of hollow iron bulb at each end and containing bits of stone. This particular implement is used to induce women to bring forth large families, the *modus operandi* being for the husband to bring the would-be mother to Ledju, who, grasping the iron rod in the centre with the right hand, shakes it over and around the woman, rattling the stones in the bulbs at the ends of the rod, at the same time muttering some strange incantation."

Commenting upon this account, Mr. Whitehead pays tribute to its accuracy and adds the following information:—

Page 469.—"Laid across those hollow stones or nests were numerous iron rods."—*Comment*: "*Goro kone gagara i piou, a ki na pondi, a 'do'don.*" ["Those

spears are crossed over the water (which is in the grindstones) and the rain (lit. 'that sky') comes, and it falls."]

Page 469.—"A deputation generally consisting of the village headman. . ."—*Comment*: "If you are a *bantio*, you bring a sheep, it is brought to the chief, and beer is cooked, and when I (the chief) rise, I go and you cleanse a goat(?) and I drink beer, and one *bantio* who has just cooked is behind, and I go with another in front."

Page 469.—"Each assistant has his own special set of nests."—*Comment*: "These apparently are the *dupi* of the chief. The present rain-maker has or had five. Four bear the chief on their head [presumably during his progresses]: one does not carry him, he carries the seat of the chief and his pipe, and the chief's box of tobacco."

The reference to the chief's seat is particularly interesting in view of a passage in one of Mr. Whitehead's letters:—

"On my way [to Belinian] I came across a native meeting in which the rain-maker, *matat lo kudu*, was haranguing together with other chiefs and officials. So far as I understood from the boys with me, he was going to get into trouble and probably be beaten for the lack of rain. I had a few words with the people, and found that the cause of the quarrel was that the wife of a chief had lost her temper with the rain-maker and broken his *sedet*, or little seat. Hence the failure of the rain. The *sedet*, it was explained to me was very old, and had passed down from father to son: his grandfather had had it, and I understood that it had been in the possession of ten generations."

Finally we may refer to the "two-headed spear" mentioned by Mr. Spire. Clearly this is the equivalent of the two-bladed rain-spear of the Lotuko, which we have described and figured elsewhere.¹ It can then hardly represent the native standpoint to speak of it as "used in attacking hostile rain clouds."

DEATH AND BURIAL.

The body is buried as soon as possible after death, the grave being dug in front of the house of deceased—on the left of the door in the case of a male, but on the right side if female. The corpse is arranged in the embryonic position, lying on the left side if a male, on the right side if a female.² The body of the dead man is shaved

¹ "The Social Organization of the Lotuko," *Sudan Notes and Records*, vol. viii, No. 2 (1925), pp. 32-3.

² Dr. Yunis states that among the Kuku a man is placed on his right side facing north, a woman on her left facing south, these positions being those adopted during intercourse (*op. cit.*, p. 18). Hansal says that the Bari buried in the sitting position, and that such objects of daily use as pipe, gourd, and earthen vessel, were placed in the grave ("Die Bari-Neger," *Mitt. der Geogr. Gesellschaft in Wien*, vol. xix, 1876, p. 301).

by the wife of one of his brothers, for which service she is given a goat. If there were no sister-in-law, some other connection by marriage—*i.e.* someone not of the dead man's clan—might do what was necessary. The Haddon MS. states that the hair removed from the body is buried in the bush, and that the corpse itself may be ruddled. Dancing by the dead man's clansmen begins as soon as the grave has been earthed in.

During our stay at Belinian, Pitia, a man of the Nyori clan, died in a village a little way off. In the early morning Nyori men beat the drum, and a man of the same clan (but not the son of the deceased) dug the grave. Jalo, a Bekat man who had married the daughter of Pitia, heard the drum and immediately went to make enquiries. He had known that someone was ill in his wife's village, but had not known who it was. He returned and gave the news to his "brother" our informant Kinyon (actually the great-grandson of his great-grandfather's brother), and together they fetched a sheep to take to the burial. We were told that when drums were heard betokening a death, not everyone would go, but only clansmen of the deceased and clansmen of other persons related in special ways. Thus the clansmen of the mother (*i.e.* the *manungu*, mother's brother) and the clansmen of the wives and of the daughter's husband would go, and in this case the clan of the sister's husband. Lejun, the daughter of the sister of Pitia, had married Tombe, the Bekat chief: thus the Bekat clan came in force on account of two relationships to the deceased. When we arrived some time before noon burial had already taken place, and people were dancing on the grave. At times they left the confined space, especially the men, who were fully armed, and performed war dances, while the women leaped high in the air upon the grave. The dead man's son, as well as a few other men and the widow, had their heads covered with ashes. The widow danced holding the deceased's bow and arrows and then again carrying his bellows aloft for Pitia was a blacksmith. His brother's daughter also danced carrying his spear. The Bekat men arrived in a body, and the Nyori left the grave to meet them and a mock fight ensued: after that the Bekat men danced with the Nyori, and we were told that each clan would be greeted thus on its arrival and afterwards mix in the dancing, again dividing up into clans when the sheep were killed.

After a death, burning grass, etc., is carried round the house to drive away the *malaka* which otherwise would worry the inhabitants in dreams.

At least one goat or sheep would be sacrificed for an adult, however humble: for more important people sacrifices would be larger and would be repeated at intervals for some time. Fig. 2, Pl. XLVIII, represents a grave of a man of importance in a village near Mongalla, known as Sheikh Suleiman, who had been dead some four years, the following information being given by Tombe Kinyo, his son. Besides the horns of three animals, the photograph shows the remains of the sun-shade and fez used by the deceased, and a pot which has been purposely holed. The beast with the biggest horns (central in the photograph) was killed two days after the

death, the other two at intervals of about a year. The notched stick (*feiti*), which we believe invariably marks a grave, is newly fallen, but will be again erected, a goat being killed when this is done.

The near relatives, *i.e.* wives and children of the dead man, are smeared with ashes, and sleep round the grave for some time, theoretically until the performance of the *rubanga* feast. The Haddon MS. states that a man does not cover himself with ashes when mourning for his dead wife; he sleeps outside and remains by her grave by day, but if he has another wife or wives he can sleep with them or not, as he desires. He mourns for about two months, till the deceased woman's mother gives him leave to stop. For children, the father does not cover himself with ashes, nor do the parents mourn outside the house, but inside; the mother covers herself with ashes for three or four days, and, as Mr. Whitehead points out, she may continue to do this at intervals for some months.

The following account of the death and mourning ceremonies performed by the Kuku is taken from Dr. Yunis' paper:—¹

"A woman who has just lost her husband is led out of her house, preferably by the wife of a blacksmith, to an adjacent khor, where she bathes and her head is shaved, returning only after the burial has taken place, lest the flies that frequent the corpse transmit death to her. She is then secluded for four days in her house, the blacksmith's wife meanwhile bringing her food, which she takes through the partly opened door. If the widow be with child, then seclusion is postponed until after delivery. 'Among some tribal sections, no matter what day of the month death occurs, seclusion can only be carried out during the terminal three days of the lunar month—in other words, the three days preceding a new moon.'

"At the end of four days the woman's head is shaved and she is smeared with red ochre and oil, when she is allowed to move about, though she must not wear ornaments, shave her head, or redden, *i.e.* oil, herself. She should wear necklaces and waistlets made of several rounds of ordinary straw-rope, while a mother, if mourning the death of a young daughter, may wear in addition some of the beads belonging to her daughter.

"The blacksmith's wife receives a fee, usually paid in arrows or sheep."

To return to the Bari, we are indebted to Mr. Driberg for the following account of the big feast at the end of mourning, which usually is held about a year after the death, and is called *rubanga lo nutu utran*.² It is obvious that

¹ *Op. cit.*, p. 23.

² Although there is only the one *rubanga* for coming out of mourning, there may be subsequent sacrifices as ordered by the *bunt* from time to time to avert sickness, etc. The term *rubanga* would be applied to these also, the word meaning both feast and sacrifice, its specific nature being defined by the words following it, e.g. *rubanga lo nutu utran* (the sacrifice for a dead man); *rubanga lo kinyo* (the sacrifice for food) (a cultivation ceremony).

the idea of propitiating the *maluka* of the deceased plays an important part in this ceremony :—

“ A *feititi* (ebony stake) is planted at the head of the grave to receive the skull of the animal sacrificed : if the deceased were wealthy two would be erected, one for the skulls of oxen and one for those of sheep and goats. In the case of a rich man they are erected by his *dupi*, but if deceased was a poor man owning no *dupi* the stake is planted by his sister's son, who takes one of the deceased's wives. It was said that in the case of a rich man as many as 80 to a 100 oxen used to be killed in the days when cattle were numerous. Cattle and goats are killed and eaten outside the village, the contents of the intestines, or, perhaps, only of the stomach, together with oil, being smeared on the *feititi* and over the head of the grave. In the evening there is much drink, and all dance round the grave. It is decided at this feast who shall inherit the wives of the deceased, and it is the duty of each person to whom a woman is allotted to remove the mourning wrappings from her ornaments. He must also pay 1 cow and 1 bull (or 1 cow and 10 goats) as fee to the woman's father or next nearest relative. A man may remain in mourning for his wife for any period from two to six months, when the *rubanga* is held, *i.e.* generally until he is advised to desist by his deceased wife's parents. All the fires at which food is cooked for the *rubanga lo nuto aturan* are made outside the village away from the vicinity of the grave. They are kindled without any ceremony, but at the conclusion of the mourning feast they are extinguished with water, and sesame oil is sprinkled over the ashes in order to avert sickness. The *dupi* then sweep up all the refuse and throw it into a river, for which service they receive a bull.”

The following additional information, concerning this feast after the death of a chief, is given in the Haddon MS. :—

“ The war-trumpet is blown and all the people are summoned. The dead man's wives and children are shaved and sit round the grave ; they are given beer to drink. If a woman refuses to drink, it is a sign that she does not wish to live with her husband's brother. All the old men are there, and it is then discussed with whom this woman's children shall live. This feast is the formal taking over of the deceased's property by the heir, and all matters relating to the disposal of the children and wives are settled then once and for all.”

Among the Kuku, J. Vanden Plas mentions special miniature houses built as shrines for the spirits of the deceased,¹ and these are described at length by Dr. Yunis, who states that ‘ the sons of a dead man build a miniature house between their houses and that of the deceased for the use of the latter's ‘ soul.’ Such shrines are circular, about 1 yard across and of about this height. Or the shrine may be low, rectangular, about 1 foot in each dimension. The soul is supposed to

¹ *Les Kuku* (Brussels, 1910), p. 143.

reside in this house permanently, and, though able to roam about, it never fails to return to it. The household are expected occasionally to kill a sheep, and brew merissa, and at night place the whole inside the shrine, for the belief is held that "the soul visits the various dishes and pours upon them good wishes and blessings, and early next morning the household consume them greedily with the conviction that they ensure their prosperity and welfare. Such meals are specially prepared at periods when the new crops have been harvested, and no new crop is edible unless a sacrifice-meal has been served to the soul in order to obtain its blessing on the food. One miniature house will serve for the soul of a dead husband and wife, and both live in it and share the pleasure of sacrifice-offerings, whereas for the souls of children a separate miniature house, generally smaller in dimensions, is built and assigned. A son or daughter taken ill, no matter what the nature of the illness is, would invariably call in a kujur, who is requested to inform the patient of the cause of his illness through his mysterious communication with the spirits of the dead, and very often he returns the verdict that the spirit of the patient's father or mother is offended at his failing to offer sacrifice, and conveys a wish that either a sheep or a bull is required. At this the patient, without hesitation, kills the sacrifice, invites his friends, and has a rich meal prepared, one portion of which is solemnly placed in the miniature house, and the rest to the party who, having consumed their share, all join in cordially wishing the patient a speedy recovery."¹

DEATH AND BURIAL OF THE RAIN-MAKER.

The body of the rain-maker is submitted to a special treatment as soon as possible after death, all the orifices of the body being plugged, lest his spirit escaping by one of these should bring sickness or, becoming a lion or leopard, constitute a danger to the people. The corpse is then ruddled with the usual ochre mixture. As a comment on this, Mr. Whitehead sends the following very interesting account, which further indicates the importance of the process as enabling the new rain-maker to control the spirits of his rain-making ancestors :—

"When the rain-maker is dead, he is plugged, his ears are plugged, his nose is plugged, his eye is plugged, his mouth is plugged, he is plugged, his fingers are plugged. And then he is buried. It is done thus so that . . . the spirits may not go out, so that the son may manage the father so that he obeys (him), so that the spirits obey the son."

This no doubt represents the course that should be followed when all goes well and the rain-maker dies peaceably in the satisfactory performance of his office. The account of what befell Nigila, "the great chief [and rain-maker] of Belenyau [Belinian]," during the famine years between 1855 and 1859, as given by his contemporary the missionary Morlang, reveals a very different treatment meted out

¹ *Op. cit.*, pp. 22-23.

to a rain-maker suspected of withholding the rain. After describing something of the suffering he witnessed, Morlang writes of the doubt that fell on the people as to the responsibility for their misery. After blaming now the slave-traders, then the mission, and even their own medicine-men, Nigila was at last held guilty :—

“ He was forced to flee from Belenyan, where his cattle were stolen and his dwelling burnt down, and for some time wandered as a hunted fugitive, until at last he found shelter with his kinsman Medi near Gondokoro, where he hoped to wait for a boat and save his life by escaping to Khartum. But . . . a numerous band of armed youths, gathered from far and wide, came to Kudschenok (the home of Medi) and boisterously demanded Nigila the rain-maker. He escaped again, but was found in the neighbouring village of Tschuekir, and was struck down with blows from clubs and four spear-thrusts. His belly was slit open, and he was left for the vultures. So died Nigila, the great Nigila . . . After his death all the cattle of his family and relatives were seized and driven away. His old mother died of anxiety and grief, his wives and children fled, some here some there.”¹

Here the abdomen is ripped open, a practice in direct opposition to that recorded as the normal procedure. We do not, however, doubt the accuracy of Morlang's account, or that this was the correct procedure in the circumstances, for the Haddon MS. describes much the same treatment of the bodies of rain-makers purposely killed. If “ a rain-chief has been killed because he has ‘ hidden the rain ’ his corpse is dragged near to water, his face is smeared with mud from the river bank, his body slashed, and his stomach ripped open, and he is left to the birds and scavengers. His old friends can go to the murderers, and by payment of cows purchase permission to bury him. He is then buried as a commoner, the apertures and cuts being left open.”

While all this is true of Belinian, Mr. Whitehead holds that the Belinian rain-makers were comparatively unimportant, and that the rain-makers of Shindirru have always been too powerful to run any risk of violent death. Be this as it may, one of the *dapi* of Pitia Leju was killed when he was an old man. The Bari account of this is as follows :—

“ The sun shone strongly, and Lika came and said : ‘ Leju, the sun is shining strongly,’ and they said : ‘ Why is it ? ’ And Leju said : ‘ No one is shining strongly, God is shining.’ And Lika said, ‘ It has nothing to do with God. [An unintelligible sentence here.] Give us Lako to kill.’ And Leju gave them Lako and said : ‘ Kill him ! ’ And forthwith he was taken away to the stream (Lomoata) and forthwith was killed, and the rain fell. And when the rain fell he was forthwith buried, and Leju said : ‘ Now you have killed him, compensate me with 100 goats and 5 cows and 2 guns ; now you have killed him, do not come here again.’ ”

¹ Franz Morlang, “ Reisen Östlich und Westlich von Gondokoro, 1859,” *Petermann's Mittheilung u. Ergänzungsband*, II. 1862-3, p. 116.

Apart from the doubtful grave at Belinian of which photographs are reproduced on Pl. XLVI, we saw no graves of rain-makers, but Mr. F. Spire informs us that stone slabs were sometimes erected on the graves of rain-makers, and permits us to publish his photograph (Fig. 3 of Pl. XLVIII)—taken many years ago—of the graves of the rain-maker Lugar and of his wife. Both graves were situated between the granaries shown in the photograph, and the remains of a hut stated to have been occupied by the wife of Lugar, the mother of Leju. The photograph shows two small upright slabs of stone: behind the taller of these is a much taller upright object with a length of rope coiled four times round it. Mr. Spire thinks that this was also of stone; if it was not, then it must have been of wood. He can offer no certain explanation of the rope, but on the analogy of Diuka graves it may be suggested that this is part or the whole of the rope with which a sacrificial animal was tethered near the grave. The notched stick over the other burial, *i.e.* behind the smaller stone, is an excellent example of a *feiti* or *gile*.

Information collected by Mr. Driberg indicates that the rain-maker is buried in a grave of special type, and that the ceremony, which is long and elaborate, closely resembles, if it is not identical with, that described for the Kuku on the recent death of their rain-maker Jibilokajo by Dr. Yunis.¹ Of this the following is in the main a somewhat shortened account:—

The first act was the sacrifice of three sheep, which were placed one to the right side, the second to the left, and the third near the head of Jibilokajo. Presumably this was done where the death occurred some four hours' march from the dead rain-maker's village, to which the body was carried on the arms of the mourning crowds and not on a bamboo-stretcher, which is the common vehicle for the dead. While the tomb was being prepared, "a close and intimate follower of the deceased"—Mr. Driberg notes that this man was a *dupiet*—is selected to serve as guardian of the grave. This man is given a wife, and during the first four days of his vigil one of the wives of the dead man joins him in watching the corpse. Mr. Driberg describes the grave as T-shaped, and this seems to agree with Dr. Yunis' not very clear description if the arms of the cross-piece are relatively short.

In the meantime the son of the dead rain-maker, and Kajo Kaji, another important chief, each slaughtered 1 bull and 1 sheep at different places outside the village of the dead chief. "This double sacrifice is not eaten, and should fall to the lot of the wild beasts, principally the leopard, which abound in these hills." From the cattle belonging to the dead rain-maker, 8 cows and 2 bulls are assigned to the guardian of the tomb, distributed in two lots, 4 cows and 1 bull to each side of the

¹ *Op. cit.*, pp. 19-21. *E.g.* an account given by Mr. Whitehead of the burial of a chief was interesting, for the fact stated that a *dupiet* actually sits for three days in the new grave underneath the body of the dead chief, which is laid on a *baka* or platform in the grave. He takes his food there and eats it, and only when the body bursts does he come out. The little hut built for him to sit in, described by Mr. Driberg (*ibid.*), may reasonably be supposed to be a modification introduced of late years.

grave. To complete the ceremony, 2 sheep are slaughtered by the son of the deceased and their skins are spread on a platform built in the grave. The corpse is laid on the sheep-skins and the people silently disperse, for tradition dictates that the ruler is as yet only asleep, not actually dead. In virtue of this fiction a small hut is immediately built near the grave, in which the guardian, his wife, and the chosen wife of the dead rain-maker live for the next four days keeping a careful watch on the corpse. Generally the abdomen bursts open on the fifth day: this is regarded as definite evidence of death, and wailing and lamentation now begin, messages (according to Mr. Driberg) having already been sent out that the rain-maker is seriously ill.

The corpse is moved from its temporary resting-place on the sheep-skins to a lateral recess dug in the wall of the tomb. This is closed by a wooden framework, and the grave is filled in, a layer of smooth mud being laid on top of all. The son of the buried chief now brings a black bull, which is thrown on the grave and held down by the mass of people clinging to it, the dead man's son sitting on its head. The lower part of the shaft of a spear is held by the sons of the deceased, while others seize its upper portion, and with a single thrust the beast is killed, while many sheep are also sacrificed.

Food—presumably the flesh of the bull and sheep—is cooked, and served to the multitude by a blacksmith, custom prescribing that each person is entitled to four mouthfuls only: beer is served in an open vessel containing a tube, and each person is supposed to take no more than one long sip. The remainder of the food is appropriated by the blacksmith.

The mourning dance, in which both sexes join, takes place to the beating of drums and the sounding of horns, the men parading their spears, bows and arrows.

The guardian of the tomb, his wife, and all the wives of the deceased, are by custom required to observe certain mourning rites for eight years: the former, who is now in charge of the 10 head of cattle and their increase, lives near the tomb for this period. Once only in the year, on the anniversary of the rain-maker's death, are these folk permitted to have the hair of their heads shaved.

At the close of eight years the termination of the mourning period is announced, and a sheep is driven into the bush as a token that the time of mourning is over. The guardian of the tomb, now the owner of the cattle set aside at the funeral, returns with them and his wife to his home, where, unless he has already done so, he will be required to pay the usual bride-price for his wife.

CONCLUSIONS.

- (1) The Bari have a clan organization with exogamy; many if not all clans observe a ceremonial attitude towards certain animals or plants, but on present evidence we are not prepared to describe the Bari as totemic.



FIG. 1.



FIG. 2.

PROFILE AND FRONT VIEW OF "BARI" WOODEN FIGURE WEARING LEATHER GIRDLE WITH IRON CHAINS. HEIGHT. 42 CM. (MIANI COLLECTION, VENICE.)



FIG. 1.—AT FOOT OF BELINIAN HILL.



FIG. 2.—VIEW NORTHWARD FROM JUBA, JEBEL LADO IN THE DISTANCE. (Mr. Whitehead.)

THE BARI.



(Mr. Whitehead)

FIG. 1.—MAGARA, A VILLAGE CHIEF.



(Mr. Whitehead)

FIG. 2.—A *dupiet* BELONGING TO MAGARA.



(Mr. Whitehead)

FIG. 3.—THE HILL OF THE SMITHS, BELINTAN.



FIG. 4.—HUT AND GRAVE-SHRINE.



(Mr. Whitehead)

FIG. 1. GRAVE, WITH "STONES OF THE *bunil*."



FIG. 2.—GRAVE OF RAIN-MAKER'S FATHER.



FIG. 3.—THE SAME AS FIG. 2, SHOWING QUARTZ FRAGMENTS IN OLD GRINDSTONE.



FIG. 4.—GRAVE OF JADA.



FIG. 1.—OLD GRINDSTONE WITH RAIN-STONES AT GRAVE OF JADA



FIG. 2.—RAIN-STONES. ABOUT 1"



FIG. 3.—HINDIRRU RAIN-SHRINE.

(Mr Spire)

THE BARI.



FIG. 1.—RECEPTION OF MOURNERS.



FIG. 2.—GRAVE OF VILLAGE CHIEF.



FIG. 3.—GRAVES OF LUGAR AND OF HIS WIFE. *(Mr. Spore)*

THE BARI.

- (2) The Bari have a somewhat complex social organization, with district chiefs of whose duties and powers we as yet know little, and a rain-maker who functionally seems to be the real head of the tribe.
 - (3) The rain-maker, though so important, is not a divine king, and may be killed in times of drought, on the plea that he is withholding the rain.
 - (4) Rainstones play an important part in rain-making.
 - (5) The Bari have a cult of the dead, and perhaps of certain snakes. They also believe in, and placate, a power they call Nun, in at least one aspect associated with the firmament.
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LIST OF PLATES.

PLATE XLIII.

"Bari" ancestor-figure in the Miani collection, Venice: height, 42 cm.

PLATE XLIV.

Fig. 1.—At Foot of Belinian Hill.

Fig. 2.—View Northward from Juba, Jebel Lado in the distance. (Mr. Whitehead.)

PLATE XLV.

Fig. 1.—Magara, a Village Chief. (Mr. Whitehead.)

Fig. 2.—A *dupiet* belonging to Magara. (Mr. Whitehead.)

Fig. 3.—The Hill of the Smiths, Belinian. (Mr. Whitehead.)

Fig. 4.—Hut and Grave-shrine.

PLATE XLVI.

Fig. 1.—Grave, with "Stones of the *bunit*."

Fig. 2.—Grave of Rain-maker's Father.

Fig. 3.—The same as Fig. 2, showing Quartz Fragments in Old Grindstone.

Fig. 4.—Grave of Jada.

PLATE XLVII.

Fig. 1.—Old Grindstone with Rainstones at Grave of Jada.

Fig. 2.—Rainstones (about natural size).

Fig. 3.—Shindirru Rain-shrine. (Mr. Spire.)

PLATE XLVIII.

Fig. 1.—Reception of Mourners.

Fig. 2.—Grave of Village Chief.

Fig. 3.—Graves of Lugar and of his Wife. (Mr. Spire.)

THE ROLE OF THE INDIVIDUAL IN SAMOAN CULTURE¹

By MARGARET MEAD.

IN the evaluation of the rôle of the individual in culture, it is fair to assume that the importance of the individual as innovator and stylist will be in great measure a function of the particular culture into which he is born. And it is of interest to investigate in what types of culture individual talent is given the freest play. The following study is based upon field-work in the Manu'a Archipelago of the Samoan Islands. The Maotian culture presents such a striking picture of flexibility, rapid slight changes, easy acceptance of innovation and deviation, that it would seem to give each gifted individual a particularly open field for the exercise of his peculiar talents. This flexibility is probably the exception rather than the rule in primitive cultures, and therefore presents a good test case of the relation between flexibility of culture and individual initiative.

I shall first discuss the attitudes in Samoan² society which are relevant to the problem of individual initiative: the logical limitation implicit in the culture, attitudes favourable to individuality, and attitudes unfavourable to it. After which I shall examine briefly the personal life of the Samoans and the opportunities open to the individual in the fields of industry, art, religion and social organization. It must, however, be borne in mind throughout this discussion that social organization is the principal preoccupation in Samoa: industry, art and religion all are dwarfed beside it.

The Samoans regard the social structure, a hierarchy of titles carrying with them specific privileges, as of paramount importance. The individual has neither rank nor sanctity in his own right, nor by virtue of the blood which flows in his veins. It is only as the holder of a title, the accession to which has been validated by large distributions of property, that he is honoured and obeyed. Coincident with this attitude is a disregard of the rules of primogeniture and of direct descent—not to the extent of ignoring them entirely, but sufficiently to set them aside in favour of special ability in heirs-aspirant with a weaker blood claim upon a family title. Each large family can hold several titles of varying importance. As a result there is no chiefly class as opposed to a class of commoners. In a family of four brothers one may hold a high chief's title, the second an ordinary chief's title,

I wish to acknowledge my indebtedness to the Board of Fellowships in the Biological Sciences of the National Research Council, whose award of a Fellowship made the field-work upon which this investigation is based, possible.

¹ The term "Samoan" will be used throughout this paper with the explicit understanding that the concrete data were gathered in the Manu'a Archipelago.

the third a talking chief's title, and the fourth be a *taole'ale'a*, without the right to sit in the council of the titled, but condemned to associate with the "young men." Yet, in the next generation, the son of the *taole'ale'a* may perhaps hold the high chiefly title if he has shown the greatest promise among the children of the four brothers. Selection for a title is based on two major considerations—personal qualifications of strength, charm, leadership, integrity; and the possession of special abilities: skill as a carpenter, orator, or fisherman.

The possession of special gifts exacts recognition from the society in two ways: a gifted man is more likely to receive a good title early in life (in some cases, if his immediate family have no vacant title which they can confer upon him, the village council takes the matter in hand, and seeks out a title for him which will enable him to sit in the council and profit by the words of the old men); and, also, a man of skill accumulates wealth through which he can advance his prestige by large distributions of property. The social structure further recognizes the master craftsman by according him all the prerogatives of chiefly rank, special terms of address, precedence in the *lava* ceremony, and position in the house, on the occasions when his craftsmanship is concerned. So the chief carpenter is the guest of honour at a house-warming ceremony or the launching of a canoe.

Where there is¹ no system of usury, the initial possession of wealth does not give anyone a disproportionate start. The *Gross-familie* system makes it easy for a young man to borrow a fishing canoe or collect a bride price. The land is only partly under cultivation and it is always possible to clear new land. Wealth consists of houses, canoes, food, bark cloth, and mats. Because the mats and cloth are made only by women, and the canoes and houses only by men, a household is more likely to be crippled by the lack of one *kind* of property, owing to a disproportion of the sexes, than by actual poverty. Before the introduction of the European copra trade there was very little property which could be said to constitute definite permanent capital. Cleared land goes back to a natural state in a very few years. The best houses, constantly repaired and reinforced, last only nine or ten years. The supply of pigs and chickens can be greatly increased in the course of three or four years. Breadfruit trees and coco-nut palms are slower to reach maturity, and are therefore the most valuable property: but here again the system of obligatory mutual aid within a large relationship group makes it possible to translate industry in fishing into breadfruit beams for a new house with very little delay.

The crafts are neither exclusive organizations nor controlled by heredity. The boy who desires to learn a trade attaches himself to a master craftsman until he has acquired sufficient proficiency to complete a piece of work himself.

¹ I use the present tense throughout, although the slow introduction of American civilization is gradually changing the face of Samoan culture, especially in its economic aspects. But in isolated parts of the islands, such as the village of Fitiuta on Ta'u, in Manu'a, these conditions still obtain.

So that neither birth, nor wealth, nor inherited craft privilege are sufficiently determining factors to seriously weight the scales as against the possession of natural ability.

Age is a serious handicap to the politically ambitious, for the political affairs of the village are in the hands of the titled men—the *matais*, to which body a man is seldom admitted until he is twenty-nine or thirty years old. But the very postponement of a genuine political majority increases the zest of the struggle to master the intricacies of the social organization, and some special wealth-producing prestige meriting skill.

The fact of being a woman presents more serious obstacles to the free play of individuality. The property owning system is such that, with a few outstanding exceptions, property can only be held by heads of families—*matais*. At the present time there is only one woman *matai* in the Samoan Islands. They seem to have been as rare as European queens and must be regarded as non-typical in every respect. The girls belonging to families of high rank who are given the title of *taupo* receive a great amount of social adulation and ceremonious recognition, but in return more services are demanded from them, and they can neither own property nor openly participate in political affairs. The public rôle of a woman is entirely confined to wire-pulling and the private manipulation of the men-folk within her sphere of influence. That sphere is often very wide as a woman is able to use her manual skill as well as her knowledge of intrigue in obtaining recognition within the household. The man owes his position in the village organization to the possession of a title, originally conferred upon him by his family; but the duties incident upon holding the title are so onerous that an old man is usually forced to resign it in favour of a younger one. His prestige within the household diminishes enormously, while that of the woman, subject to no such spectacular rise and fall of social position, suffers no such eclipse: and it is as an old woman, relieved of child-bearing and child-tending, famous for her skill as mat-maker or midwife, that a woman finds the freest vent for her individuality.

Physical defect has few far-reaching consequences. Blindness or deafness disqualify an individual for occupations in which the particular lost sense is specifically needed. Ill-favoured boys and girls are debarred from holding the two titles of *taupo* and *manaia* (the title which may be given to an heir-apparent in a high chief's household), but if they possess special abilities these may later be recognized by a good title for the man, and a good marriage for the woman. The society is more likely to give absolution to the disabled in perfectly irrelevant matters than to penalize them unfairly.

There is no rigid series of tests or ordeals which may serve unfairly to eliminate those who, while possessing special abilities, nevertheless lack particular character or mental traits necessary to carry them through preliminary encounters with set tasks. There is scant premium set upon fortitude and endurance. Neither fasting,

self-torture or significant self-denials are enjoined upon young or old. Entrance into the *Amanaga*, the organization of young men, is the social stamp of young manhood; the requirement is a gift from the father or *matua* of the initiate to the group; the initiation ceremony is a feast. Within the *Amanaga*, a tattooed and an untattooed group are distinguished, so that tattooing may be postponed several years beyond puberty. The tattooing itself may be prolonged over several months, and any number of groans are permitted.

No other sharp trials confront the youth. He is left to work out his own salvation slowly without undue pressure. His choice of a profession is in his own hands, and professionally he is subjected to no atmosphere of harsh and unfriendly criticism. When he has studied carpentry long enough so that he feels capable of building a house himself, some relative will give him his first commission. If he completes the house satisfactorily, he receives the final payments in the stately ceremony of the *Umu Sa* (the Sacred Oven): the chief carpenters of the village all partake of the feast at which the successful novice is given highest honour. He is then recognized as a *tafaga faa fale* (a master house builder). If, on the other hand, the novice has overestimated his skill and bungled his job, the others will go to his assistance, but neither in triumph nor rebuke, and help him to finish his too ambitious task. His defeat will be glossed over, revamped into a step in his education, and not viewed as a signal and crushing defeat.

Bravery in warfare was never a very important matter in Manu'a. War was a matter of village spite, or small revenge, in which only one or two individuals would be killed. The most dangerous posts were allotted not to those who had watched their arms or seen a vision, but to the young men living in a special division of the village. Where the war-making and war-leading powers were vested in men holding special titles and the service as scouts was residually determined, any selection on the basis of prowess was of little importance.

No religious experience was demanded of any individual, neither skill in communicating with spirits, nor in fact, any important communication with them whatsoever. A careful observance of the taboos surrounding special places: the village god—where there was one—and one's family god; a libation poured to the family god¹ at the evening *kava* ceremony, completed one's religious duties.

In only one respect does the society impose an ironclad choice—the acceptance of a title. A man who through self-distrust, laziness, or fear of responsibility refuses a *matua* title is for ever marked as a social backslider; he can never be awarded any other title, and remains a titular "young man" until his death. But only here, where the very base of the social order is rejected, can an act, one moment's failure, damn an individual for life. In all other respects most of a man's life is

¹ This "family god" had all the elements usually included in the definition of totemism except the theory of descent from the totem. Because so much dialectical confusion centres about the term, I prefer to keep the term used in the earlier literature on Samoa, "family god."

regarded as a painless, casual sort of novitiate, offering repeated small occasions for making a mark. The reward is a very brief period in which the fruits of these not too strenuous efforts are enjoyed, before old age and decrepitude relegate him again to a cup of *kava* by courtesy and a seat in the back of the house.

In contrast to this flexible scheme there are other attitudes definitely hostile to the development of individuality or the exercise of peculiar talents. Complementary to the *laissez-faire* attitude toward slow development, toward the awkward gangling boy who gradually finds his tongue and at thirty-five learns to speak in council, is a feeling of rigid intolerance toward precocity, youthful innovators, or short cuts to prestige. All of these crimes were summed up in the expression "*tuatula lai titi*" (talking above one's age, or, less importantly, one's status). No stigma, not even the reputation of tale-bearer or thief, can so thoroughly wreck a boy's whole career as receiving this brand. Such an attitude, never relaxed except on the dance floor, serves to discredit the gifted and discourage the prematurely ambitious, and so becomes an even greater levelling force than the social tolerance of tardiness. Where the precocious are execrated and the slow plodders treated gently and rewarded according to their ultimate achievements, titles and positions of equal importance may be held by middle-aged men of very different natural gifts.

The suppression of a whole group because of one common quality like age or sex is as likely to produce undesirable results as the favouring of a whole group because of some common characteristic like rank or wealth. To be young or a woman in Samoa is a sort of guilt in itself, a state of affairs for which perpetual tacit apologies must be made. And the fact that so much of the heavy work, and almost all of the dull, routine and humdrum miscellaneous tasks fall upon the young makes the status of youth a positive and onerous burden.

This attitude toward youth is aggravated rather than relieved in the case of children of men holding high rank. There is rigid chaperonage of the girls, severe and exacting tutelage of the boys. Because there is so little permanent wealth, and a chief's expenditures are heavier than those of men of lesser rank, the young people of a chief's household work harder and have less freedom and less chance for self-expression than the children of households of fewer pretensions. The young relatives of a chief are always liable to more or less compulsory invitations to become members of his household, and must undertake the more exacting responsibilities which such residence implies.

Furthermore, the very democratic nature of the competition for titles has a deterrent effect upon the attempt to attain virtuosity. A man's accession to a title means endless responsibility for ten or fifteen individuals in the household under his charge—responsibility to the village council for their care, guidance and peaceful behaviour; responsibilities in the affairs of the village. Holding a title also carries with it a status fenced about with prohibitions. A *matua* may not associate with

the young men, play games with them, or take light-hearted part in any youthful frolic. Whatever his age, status, not age, determines his behaviour, with the result that many gifted boys unwilling to accept these responsibilities, hide their lights under bushels—and lights so hidden for years are likely to go out for ever.

But offsetting these deterrent social attitudes are others—most importantly the eager acceptance of the new, and a premium upon the incomprehensible, the esoteric and the elusive. On the dance floor and in the minor industrial arts even very young people are permitted to initiate, and in adult life individual variations of the pattern are accepted with hospitable acclamation. Because all social ceremonies are combinations of a number of relatively independent elements, each one of which is regarded as a unit subject to manipulation and variation, the innovator can give immediate and free play to his desire to make himself felt by introducing some slight change. The native delight in a proverb which no one understands, a change of phrasing, a hint of some knowledge of esoteric lore, results in an atmosphere more favourable to individual variations than the sort of society in which everything is conceived of as having been done in one particular way from time immemorial, and the knowledge of the tradition-sanctified procedure is shared by the entire group.

PERSONAL LIFE.

The young child is allowed many startling privileges. The developing individual is conceived of as gradually growing in a quality designated as *māfaufau*—a difficult word to translate, perhaps best rendered as “an ability to exercise good judgment in personal and social matters.” Character deficiencies are explained by a lack of this quality: any particular breach of group standards carries with it the accusation “*Lē ai se māfaufau*”—“lack of judgment.” Although regarded rather as a unit quality, there is also the suggestion that judgment on particular points may develop at different ages.¹ The natives look upon the development of this quality as a pure matter of growth: they meddle with it neither by magic nor profane formulas.

The enforcement of the most severe and important sex taboo in the society—the brother and sister taboo—is left in the hands of the younger of the siblings. When the younger child has sufficient *judgment* to feel ashamed at any contact—this includes familiar conversation, participation in the same small social events, and use of each other's possessions as well as actual physical contact—then the taboo comes into play. The older child is expected to make no move, but to wait upon the younger's maturing judgment.

The selection of a residence is also very much in the children's hands. Any child over five or six is an economic asset; little truants are welcomed by any relative, and a ten-year-old may change his or her residence two or three times

¹ The Protestant Church has taken over the word and uses it for “years of discretion.”

before settling down. This freedom of choice actually serves as a powerful deterrent of specific adult tyrannies, and the child is often content to remain in one household, serene in the reflection that he can always run away if he wishes.

The selection of tutors is also left to the young people themselves, with the exception of children of high chiefs. These latter must be taught by the talking chiefs and their wives, the education of the chief's children being one carefully defined item in the complicated reciprocal relationship existing between a high chief and his talking chiefs. Social pressure is exerted in indefinite terms: "It is time Tuli learned to weave blinds": "It is time Lele began a fine mat": "It is time Palo should be able to go bonito fishing"—and the choice of a teacher who will teach Tuli to weave blinds, Lele to begin her fine mat and Palo to fish, is left to Tuli, Lele and Palo individually. Very often a child's own father and mother are the teachers, especially in the simpler tasks, but as often the *matua* and his wife, as persons of more prestige and skill, are chosen: and the boy in search of a special technique, like carving, netting or lashing, will range far afield to the very edges of his wide relationship-group, and occasionally even beyond it.

Boys are circumcised at puberty: and here again they make their own choice of physician and occasion—two boys usually repairing together to an older man skilled in the operation.

The same freedom is permitted in the matter of personal names. As a name is regarded as a tangible entity, it cannot be both retained and given away. So constant name-changes occur through an older girl or boy "giving away a name" to a younger child and assuming a new one: the younger child in turn "throws away" the old name. In this way there is among the youth of the community a non-significant aping of the important adult mechanism of changing from one title to another. The choice is left almost entirely in the children's hands.

Also, for all the young people, except the daughters of houses of rank, there is comparative freedom of choice of partners in sex-experience. This does not apply to marriage, but it does result in a gradual development of the emotional life free from any warping compulsory factor. The idea of forceful rape or of any sexual act to which both participants do not give themselves freely is completely foreign to the Samoan mind. This applies also to freedom of divorce: marriage is a socio-economic matter, but divorce is not. Either party to a marriage may leave it at any time and return to his or her home. Such freedom is possible because women always retain a claim on their parents' property, which needs only to be validated by actual participation in the labour of the household and on the plantation.

Members of chiefly families are deprived of a great deal of this freedom. The chief's child is named more formally, is educated and circumcised by the talking chiefs, and, in the case of a girl, denied pre-marital sex-experience. Similarly, adultery with the chief's wife is a crime punishable with death. The marriage of women of rank is a source of profit to the talking chiefs: so is the remarriage of

chiefs, on whom pressure is often exerted to divorce one wife that his councillors may fatten upon the dowry of a new one.¹ Less definite, but very important in the development of individuality, are the thousand minute rules of etiquette which hedge about those of high rank, from the plight of the *tupou* who is strictly forbidden to scratch mosquito bites in public, to the chief who may not climb his own coco-nut tree if anyone of lesser rank is present to climb it instead.

Fatal to the prosecution of private plans is the lack of power over one's own time. Only the *matais*, subject to the demands of the village council, can make their own times and occasions; every one else must suffer continual interruptions without irritation. The young child is subject to every single older relative in the village. This ascendancy of age continues throughout life, cut across by accession to a title for a fortunate man, while the young and unfortunate must accede to the demands of the titled as well as those of their elders. Village matters take precedence over household, household over individual, the affairs of the older over the affairs of the younger—and all this constitutes a network of exactions through which the young can seldom count upon escaping for more than an hour at a time.

With the exception of the *matua*, no individual has any privacy or control of personal property. Ten to twelve persons eat and sleep in a one-room house. The *matua* alone can exclude others from his house, and even require someone to wake and keep intruders away while he sleeps. Every word, every act, is the property of an interested inquisitive public. Similarly, a ring, a dance skirt, a fishing-rod might be the handwork or the nominal property of an individual, but it is liable to seizure by the *matua*, or, as an obligatory loan to a relative, or simple confiscation by an elder at any time.

In the selection of his rôle in the social structure the individual is allowed very little positive choice. Marriage² is an economic matter ratified by an exchange of property between the two contracting families. The wealthier and more important the family, the less chance the young people have of selecting their mates. No act of theirs, not an elopement resulting in children, could legalize a union from which the customary exchange of property had been omitted. Similarly, a man may refuse a title, but he can never select one and take it for himself. He may aspire to a title, labour zealously to attain the necessary skill, knowledge and wealth: the choice still lies with someone else. The individual is still a pawn on the social chess-board.

ARTS AND INDUSTRIES.

There is a virtual absence of formal industrial procedure as far as the artist himself is concerned. He does not need to prepare for his task by a long series

¹ This is a modern development. Before the abolition of polygamy the talking chiefs simply added a wife to the chief's household.

² Church and government are gradually introducing a marriage based on individual choice which is recognized by the community.

of ritual acts, treat his materials with religious deference, nor consecrate the finished object. Work is primarily secular in character. Only when it involves several individuals, a contracting chief and a craftsman of standing, is social ceremonial between the participants introduced.¹ Education in industrial matters is definitely a question of imparting actual techniques. The relationship between pupil and teacher is secular, casual and uninstitutionalized. There are no charms, no secret formulas, to be imparted.² Material is regarded unreverentially and as subject to repeated experimentation and manipulation.

There is no symbolic art. Certain kinds of tapa patterns are most esteemed and put on the best tapa, which is worn by those of highest rank. But this implies merely a demand for the best for the highest: rank only plays an indirect rôle. There is no absolute number of tattooing stripes, or house beams or platform terraces permitted to men of different rank. But if several boys are tattooed together, and the chief's son has five bands of tattooing, the sons of the talking chiefs may not have more than four. If the highest chief in the village has only three terraces around his house no other chief may have more than two, but if he has seven the next ranking chiefs may have as many as six. But rank sets no premium upon special designs or special styles of decoration, and so provides no stimulus to development along particular lines. A premium set upon size, breadth, length and thickness, while developing routine craftsmanship of a high order, has much less influence upon individual initiative than would have come from setting a price upon new and original forms of decoration or actual variations in style. While a Maori chief was distinguished by the possession of a carved house, a Samoan chief boasts principally of the possession of the house with the greatest number of cross-beams (this makes it automatically the highest) and the greatest number of pebbled terraces in the village.

In the details of a craft innovations were welcomed. There is no set style from which it is inadmissible to deviate, no stringent taboo against change. On the contrary, there is a strong feeling against making any two things alike, which extends even to a prejudice against making two sides of the same house or both ends of the same piece of tapa cloth exactly alike. The deadening effect of the use of pattern-boards in stamping tapa is continuously and consciously evaded by the introduction of asymmetrical variations in the subsequent free-hand emphasis given to parts of the design. There is a genuine feeling for individual choices in decoration and a vivid distaste for slavish imitation. The innovation tends to become completely identified with the originator, and so the more striking the departure from established usage the more conspicuous becomes any attempt to

¹ The one exception to this is the ceremony for burning candlenuts for black tapa dye. Here, although only one old woman participates, an elaborate magical ritual is followed.

² Except in medicine, which will be discussed separately.

copy it, and the more likelihood is there of the new pattern's perishing with its author. I once particularly admired a fan in which the usual form was varied with conspicuous success. I tried to persuade some of the women on Taū to make fans like it, but without success: "A woman on Olosega makes that kind." "But why don't you make them too?" "Because a woman on Olosega makes them. I make my own kind of fan." Surrounded by the easy social expectancy of at least some slight rearrangement of the old designs, deprived of the flattery of imitators and any social or economic premium upon stylistic variation, the artisans take but little significant advantage of the unusual freedom allowed them. Their audiences are easily satisfied—a new combination of dance-steps: the transfer of a weaving pattern used on baskets to a food platter: a leaf design reversed—these are sufficient innovations. So decided is the set against imitation in dancing, that when I was trying to work out some variation on the pattern for my own dancing, I tried mimicking the peculiarities of well-known dancers. This was sufficiently new and unexpected to satisfy my audience.

In the larger industrial undertakings, such as house and canoe building, the question of departure becomes a socio-economic matter. An additional house post means an additional feast and consequently additional expenditure. Where variations have such far-reaching consequences, the whole craft-group retains a firm control, and unlicensed changes are punished by the village council: the deviating carpenter is deprived of the right to practise his trade. Where changes affect the entire group of carpenters, they decide upon them as a group in the occasional large councils of *tafiyas*, where questions like adding to, or reducing the number of, payment feasts are solemnly voted upon.

The practice of medicine presents a somewhat striking contrast to the other arts. Although there are no charms or incantations, the formulas are secret and handed down from an old woman to her daughter or niece. Each formula is regarded as a personal possession: "Lale has a good medicine for the stomach": "Tofi has a good medicine for the toothache." Sometimes six practitioners have six different medicines for the same ailment; they are regarded as probable equivalents, just as to-day native remedies and white men's remedies are often resorted to indiscriminately. This secrecy, this easy acceptance of the possibilities inherent in half a dozen remedies, militate against the accumulation of any general store of medicinal knowledge. The individual practitioner has the formula she learned from her elders, a knowledge of a few general medicinal herbs with cathartic qualities, and a free field for unchecked, dangerous and profitless experimentation.

In striking contrast is the practice of surgery, which is a public affair—a matter of skill, a technique to be learned; and so efficient have the natives become that mis-set bones come under the care of the American doctors with surprising infrequency.

RELIGION.

Institutionalized religion and personal psychic experience were both exceedingly undeveloped in aboriginal Manu'a. Through the existence of the taboo system much of the social ceremonial took on a quasi-religious character, but innovations here really belong in the field of social organization. When the solemn *kava* ceremonies, in which the *kava* is poured to the gods in a prayer to avert misfortune, and other social functions of the same sort are subtracted from the sum total of religious activity very little remains.

In his relationship to the family god and the spirits of the dead a very free rein was given the individual. The origin of village gods or local gods worshipped by a number of families seems to have been in an extension of the worship of the god of some gifted individual who combined psychic powers with a general worldly success which testified to his possessing much *mana*. Sometimes he assumed the position of a priest or oracle and was richly rewarded by offerings. This prestige he might perhaps transmit to a son, but there it seemed to lapse, resulting in a shifting pantheon and no genuine priestly institution. There were no priestly families.

Aside from this enhancement of his own inherited god's prestige, an individual who possessed special psychic gifts might gain considerable prestige and wealth from their exercise. His services would seem to have consisted in exorcism of evil spirits and ascertaining the cause of disasters. These special gifts range the whole gamut from the ability to go into a trance, to the medicine-makers who talked to the ghosts as they gathered their herbs, and when the herbs could not be found knew that the patient would never get well. But there was no point in the social life at which the services of such people were absolutely necessary—a priestless *kava*-drinking ceremony would always do just as well. The unstable were rare: they were regarded as gifted, not skilled, and there was no tradition of apprenticeship.

SOCIAL ORGANIZATION.

But art and religion and the basic economic operations themselves are all mere background and by-play compared with the social organization. A man holds his title first: his skill, his character and his god are less important. And this very overpowering importance of the social structure, coupled with the fact that the individual and the title never became completely moulded into one unit, makes for flexibility and change.

The titles are arranged in an ideal structure, based on the seating positions to which they entitle their holders in a great ideal council (*fono*) of all the Samoan Islands. This ideal structure is repeated on a smaller scale for each island, island division and village. In each local replica of the great plan, fewer of the great titles appear and titles of smaller and smaller rank are inserted. On the island of Taū there are three village *fonos*—one for Fitiuta, one for Faleasao and one for Taū: a second scheme includes Taū and Faleasao, necessitating the omission of some of

the lesser *matai*s from the seating arrangement: and a third includes all three villages, in the *Fale Ua*, the great council of the Tui Manu'a.

These titles belong to two main classes-- chiefs (*alia*) and talking chiefs (*talafale*). Within these two groups there are endless shades of rank and precedence, but the two main classes remain distinct: their relationship to each other is an elaborate system of reciprocal services. It is the duty of the talking chiefs to maintain the honour, prestige and public high estate of the chiefs: to act as their ambassadors, spokesmen, grand viziers, bankers and campaign managers. In their hands lie all the traditions, the regulation of etiquette and inter-village social intercourse, the ordering of all important social events such as the marriage or death of a chief of high rank, his princess (*taupo*) or his heir-apparent (*manu'a*). For the talking chief of highest rank, called in Manu'a "to'oto'o" and "sa'āfuni'a," these functions are conceived more as services to the whole village, organized as it is around one or more high chiefs, than as personal services. Talking chiefs of lower rank perform definite services, such as preparing the chief's food, or representing him for several months before his marriage in the family of his betrothed. The talking chief must also provide the chief with food upon all important occasions.

In return for these services, they receive fine mats and tapa payments ranging from the great distribution of the bride's dowry among the talking chiefs of the high-chief bridegroom to the gift of a length of tapa to each talking chief who has danced beside the *taupo*. And, more importantly, they possess great power. Theoretically the chief is a noble figure-head, of too high rank to make his own speeches in council or propose for his own wife. And the talking chief who obsequiously sings his praises also makes most of his decisions for him.

A *matai* title is conferred upon a man by his family group, and carries with it a place in the social structure. Theoretically this place is fixed and invariable; actually, if the holder of the title is poor and unpopular, the position of the title may be radically altered by the powerful and disaffected talking chiefs who wish to exalt some other and wealthier individual instead. Such changes necessitate the manipulation of old myths, or the outright invention of new ones, to validate the claim of the *nouveau riche*: changes in the *Fa'alapega* (the courtesy salutation formally recited by visitors): changes in the geography of the village and even in the dating system. It is customary to refer to events of the past hundred years as happening during the time that such and such a high chief held his title. When a high chief is quietly, insidiously relegated to an inferior position, the conversational habits of the village historians must be revised so that their references are not to his forebears but to the undistinguished forebears of his successful rival. I have one case where this happened in the course of twenty-five years. It is possible to check these local changes by the talking chiefs of distant villages, who visited the now metamorphosed village some twenty years ago and had studied the then existing social organization carefully for the occasion.

Such conditions were made possible by several different factors. The social organization was known in detail to only some twelve or fifteen old men in a village: the more incomprehensible they make it to the rest of the population the greater their prestige. The relationship-group controls the title, and the talking chiefs have, with one exception (the Tui Manu'a), nothing to say about the choice of an incumbent. Not being able to choose the individual, they, instead, manipulate his formal status, greatly increasing the strange disassociation between the individual and the position which he holds.

Furthermore, there are other premiums set upon innovation and originality of social form, quite aside from the desire of the talking chiefs to exercise their power or increase their wealth and the way in which the ambitious *matua rale* exploits these desires. Every village seeks to have a different social structure from the neighbouring village, and there is no standard of better or worse. The stress is all laid upon difference. If one village derives its prestige from having seventeen chiefs of such high rank that each one has to be mentioned in the introduction to every formal speech, the next village retaliates by exalting one chief so high that no one else's name can be mentioned with his. If one village has four *ti'oto'o*s the next village is unique: it has only one *ti'oto'o*. If Fituta has the most systematic *fono*, in which each pillar seat is named not only after one *matua* but after others who are entitled to sit in his place during his absence, Ofu can boast of having three entirely different ways in which the *fono* can be arranged. Similarly with the courtesy language, a common word on one island may become the highest chief's word upon another: and the courtesy language also gives wonderful opportunities for the invention of new esoteric phrases known only to the locality and designed to puzzle visiting orators. A talking chief's prestige depends upon his knowledge of the minute details of the social organization not only of his own districts, but of other districts, for upon this knowledge more even than upon rhetorical skill, depends the choice of orator for great occasions. And a village is proud of the reputation of being *fa'igata* (difficult) for the visiting orator.

Because of the extreme variety of social ceremonials, composed as they are of the same elements in endless recombinations, the Samoans really see them as combinations, not as fixed sequences. An intelligent talking chief never has to begin at the beginning and go through a ceremony in order to arrive at some detail. It is possible to ask directly: "How many *kava* bowls are used at the marriage of Tui Manu'a?" "What kind of girdles do the *Sa'fa'u's* wear in the funeral ceremony?" and get an immediate answer. (Needless to say, the actual procedure varies enormously from occasion to occasion.) This is also due to the fact that the highest pitch of etiquette is reached not by observing the fixed procedure, but by pointedly reversing or rearranging it. One of the principal reasons for knowing who *should* receive the *kava* cup first is so that one may honour another by giving it to him instead. In this dexterous, graceful play with social forms the Samoans

find their chief artistic expression. In the more serious manipulation of the social structure, for purposes of economic gain or political ambition, lies the most powerful dynamic force in Samoan society.

CONCLUSIONS.

Only by placing Samoa against the Polynesian background is it possible to arrive at a basis of comparison and say, for instance, that the art of Samoa is relatively undeveloped or that the religion plays a minor rôle. Thus, in religious development, Hawaii, Tahiti, New Zealand and the Marquesas all out-distance Samoa in richness and variety of religious forms and beliefs and in the relative importance of religion in the lives of the people. Samoan tattooing is of negligible artistic intent beside that of New Zealand and the Marquesas, as is Samoan wood-work. In tapa-making the Samoans never approach the beauty of Hawaiian tapas. It is for its intricacy and complexity of social organization that Samoan culture is particularly conspicuous.

When the comparison is made, not with other cultures of Polynesia but within the Samoan archipelago, the same result is reached—social organization occupies most of the thought and interest of the community: all other activities are at least partly subordinated to it and made to minister to its ends.

With this preponderance of the social interest in mind, it is possible to ask: How important is the influence of the individual upon the different parts of this flexible culture which is hospitable to innovation, omnivorous of variation?

In the field of personal relationships the freedom of choice allowed the individual is prevented from having more important results by the low level of appreciation of personality differences. Choice is possible among homes, among teachers, among lovers; but the consciousness of personality, the attitudes necessary to make such choices significant, are lacking. So that the freedom in personal choices operates mainly in reducing the poignancy of personal relations, the elements of conflict, the need for making painful choices. The emotional tone of the society is consequently more moderate, and less charged with strain and violence. It never exerts sufficient repression to call forth a significant rebellion from the individual. The suicides of humiliation so common in parts of Polynesia do not exist in Samoa. The individual need commit no murder, need not even muster up a fine rage to escape from a disagreeable situation—he simply slips out of it into the house next door. Such a setting does not produce violent, strikingly marked personalities: it is kind to all and does not make sufficient demands upon any.

In the decorative arts, the freedom given to the individual is rendered nugatory by the absence of cultural recognition of the innovator and by the strong prejudice against active imitation; so the gifted individual receives but passing praise for his work. The variations are taken for granted: they do not become distinguishing

marks of high rank, nor do they enhance greatly the economic value of the object. And his ingeniousness is seldom directly perpetuated in the work of those who come after him. Tattooing and tapa designs retain the same fluid, slightly differentiated style, containing endless, non-significant variations, imitation of no one of which permits a real trend in a new direction to develop.

In religion the premium set by society was also very low, giving slight economic gains and only small increase in social prestige: and the man who had been a medium or local priest in his day was still remembered more for the place which he had held in the social structure. The most famous "priest" in Samoan history is probably O le Tamafaiga of Manono, who usurped the great secular title of the family of Muagututia.¹ So in religion the same nondescript variation occurs—one village with two gods, another with none, a pile of stones where the god of some family had once been worshipped by the whole neighbourhood. The society contained no mechanism by which an individual religious genius could permanently institutionalize his inspiration. In a generation they were back again to the casual service of their family gods, and the occasional formal recognition of the high gods in the course of social ceremonial.

In the social organization the individual is given the freest hand and meets with the greatest rewards. So flexible is the social structure, so minutely adapted to manipulation, that it is possible to change the appearance of the *fano* in twenty years. But this very sensitivity to slight change proves in the end to be a conservative factor. The social innovator runs against no hard-and-fast wall of caste, no religiously sanctioned ritual, no jealously guarded body of tradition. Would he make a change—a few fine mats, a little judicial diplomacy—the social landscape is completely altered. His ambition, his itch toward manipulation, and his desire for revenge meet with too slender opposition. The social structure offers too slight a challenge: it is too complacent to the innovating hand. And so the recent history of Samoa contains few records of important changes introduced by individuals. The daring coups of the Hawaiian kings and the lonely, dangerous rôles of Maori outlaws are absent from Samoan chronicles. And the ever-yielding, ever-accommodating social structure has remained much the same generation after generation, while the talking chiefs with original minds and social ambitions slid, sated with too easy victories, into undistinguished grooves.

Without seeking to generalize beyond the limits of the material, it is possible to summarize: In Manu'a the individual plays the most significant rôle in the most complex and important aspect of his culture, the social organization. The whole flexibility of Samoan culture, which at first blush looks so favourable to the display of individuality, so pliant to the moulding hand, is also a powerful conservative force. It possesses all the strength of the tough willows, which bend and swing to every passing breeze but never break.

¹ Stair, J. B. *Old Samoa*, p. 77.

EXCAVATIONS IN A WILTON INDUSTRY AT GOKOMERE. FORT VICTORIA. SOUTHERN RHODESIA.

By FATHER GARDNER.

[In the course of an Archaeological tour through South Africa and Southern Rhodesia in 1927, I had the good fortune to visit the excavations at Gokomere and to meet Father Gardner. His discovery of what appears to be a nearly pure Wilton industry in Southern Rhodesia seemed to me one of considerable interest, from the point of view of the origin and distribution of this interesting culture. I therefore urged Father Gardner to write a short paper on his finds, and he has been good enough to send me the MS. which, with the exception of one or two very minor changes made in the course of preparation for the press, is herewith given.

The sketches of the implements supplied by the author were not quite suitable for reproduction, and have been re-drawn by my wife. Unfortunately, in making these fresh drawings, direct reference to the specimens was not possible, but a collection of similar types in my possession was used as a check to ensure the approximate accuracy of the illustrations. The figures have since been submitted to Father Gardner and may be regarded as giving a fair representation of the tools found.

Readers will, I am sure, agree that Father Gardner is to be congratulated on his work, which is an important contribution to our knowledge of African Stone Age cultures.—MILES C. BURKITT.]

THE SITE.

Gokomere is the name of a kopje situated some 8 miles north-west of Fort Victoria, Southern Rhodesia. The kopje is a granite mass strewn with titanic boulders—huge blocks that long ago split away from the main mass, and have since been rounded off by the process of "weathering." During a long lapse of time not a few of the boulders have rolled downhill to the base of the kopje.

PAINTINGS.

Gokomere is surrounded by smaller kopjes of the same description, and on many of these rock-paintings are to be seen. There are about 30 of these paintings within a mile radius of the central kopje. The artists chose ideal rock-faces for their work protected from the rain by natural eaves of rock. In spite of their precautions scarcely one picture remains in a good state of preservation. They are very old. The painting is usually associated with a small den among the rocks.

with room to shelter a few persons from the inclemencies of the weather and providing dry ground for a fire.

THE CAVE.

At the base of the main kopje, and facing the rising sun, there is a more commodious shelter. It lies below a projecting ledge of granite which forms the roof, and is buttressed on either side by rock-walls. It is roughly square in shape, with a side of, say, 30 feet. In front, rocks and trees screen it from far observation and provide the necessary break against the cold winds from the east. There are five paintings near this cave. The artists, whoever they were, do not seem to have belonged to the Bantu race, for the latter disclaim having had anything to do with the work or with the workmen. I have tested some of them with a buffalo's head and what looked like a battle-scene, and they have answered me: "We see natural streaks, and nothing more!"

THE EXCAVATION.

While examining this site I noticed that a rat had scratched up a small stone implement from the floor of the cave. I followed the lead given by my "ally" and have excavated the whole area. This task was all the easier from the fact that the cave is close to the homestead and is not deep.

The original floor was uneven, fissured, and studded with bosses of rock and blocks of stone, a state of things very favourable to the excavator, for cracks and crevices are the home of treasure. The top layer consisted of a bed of rubbish, ashes, charcoal, and potsherds, with iron implements almost completely destroyed by rust. This layer was about 1 foot deep, and represents, to my mind, the work of the Bantu settled as we find them to-day.

Below this layer, or, rather, as a foundation for it, was spread a carpet of yellow mud from 1 inch to 2 inches in thickness, laid down either to tidy up the place, or, more likely, to provide a threshing-floor. Below this clear dividing-line stone implements were found throughout the area to a depth of from 1 foot to 3 feet.

IMPLEMENTS, ETC.

The stone implements are, with a few exceptions, of small size, and consist of scrapers, crescents, knives with jagged edge, and fine drills. Beads of ostrich shell were found complete and half-made. There were a few spikes of bone and one of ivory.

Fragments of hæmatite in various stages of oxidization were found throughout the lower ground. The factory site was located within and along the line of drip from the roof. Nests of implements also were found around the rocks on the floor.

A $\frac{1}{4}$ -inch mesh was used for sifting, so practically all the artefacts have been recovered.

The Scrapers. (Figs. 1-5.)

The scrapers have a very true curved edge finished off by secondary trimming to remove the slightest trace of serration; they are brand-new, fresh and crisp as when the knapper laid them aside.

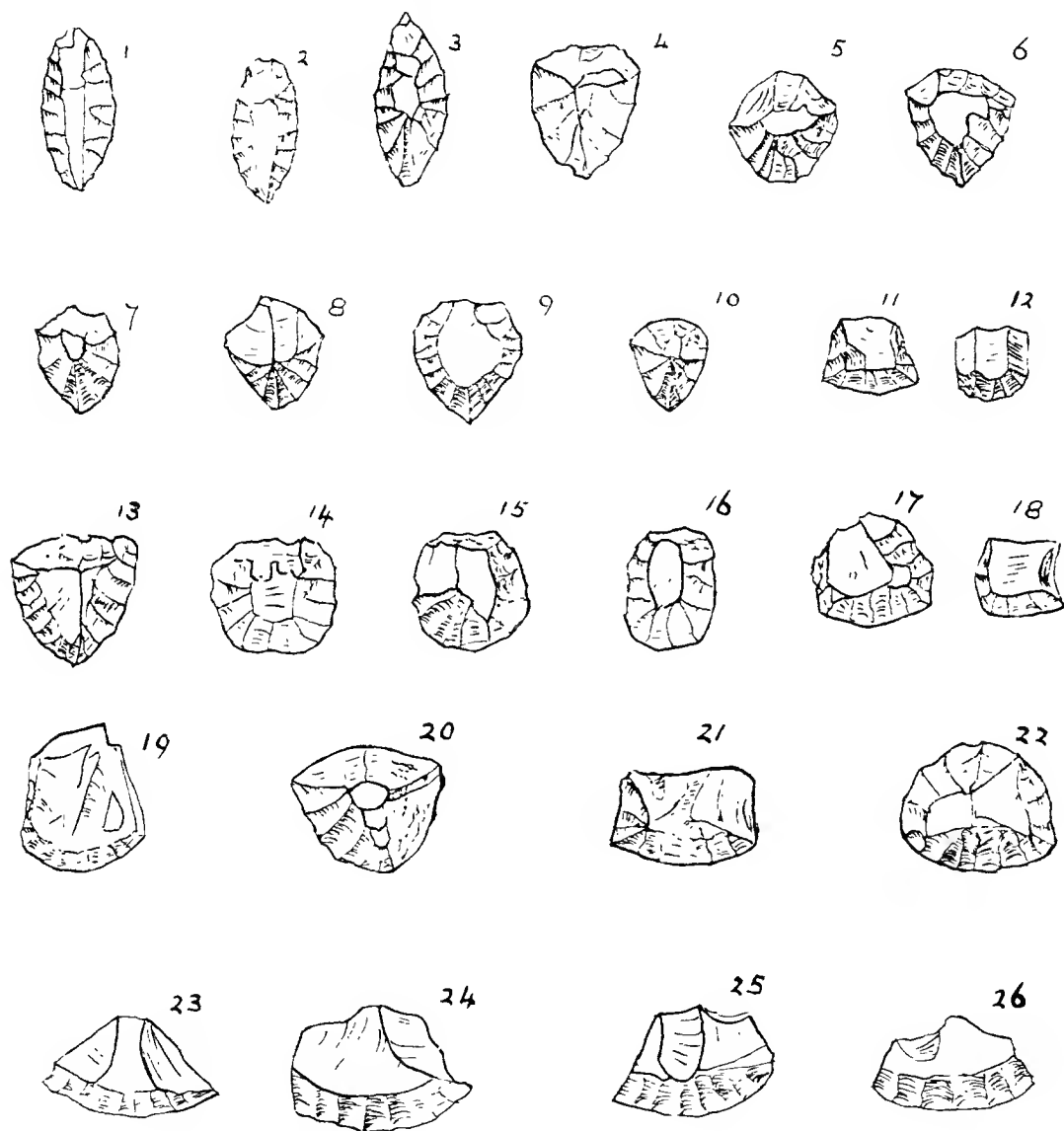


FIG. 1.—SCRAPERS AND DOUBLE CRESCENTS. (1.)

The medium-size specimens sit conveniently on the thumb-nail, the butt end is not faceted, and in this respect they differ from the small trimmed flakes that are to be seen on the surface all over Rhodesia.

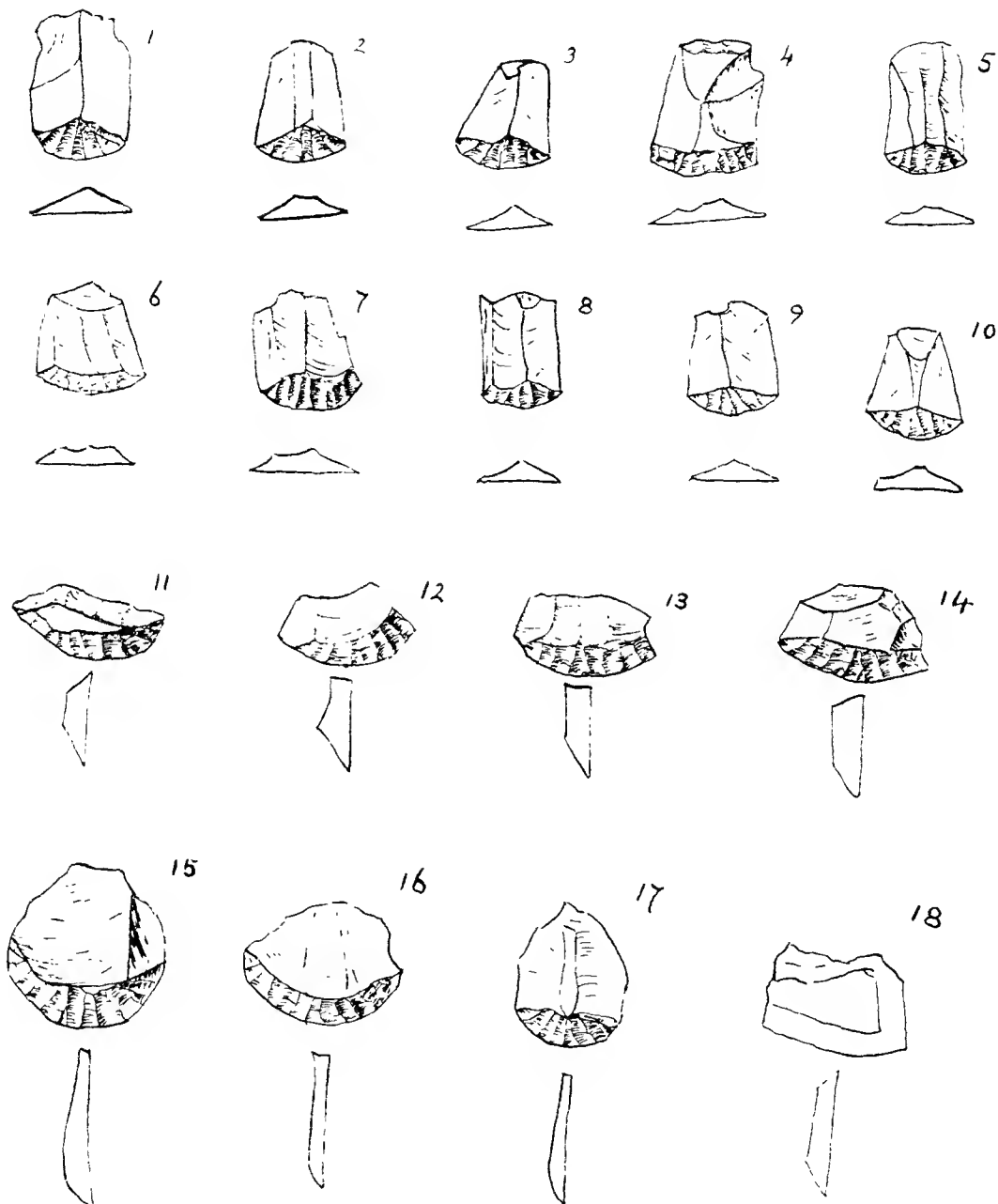


FIG. 2. --SCRAPERS. (1.)

With three exceptions no such trimmed flakes were found within the cave. Neither was the ubiquitous discoidal implement found, a compound affair with often a cutting and scraping edge and also a groove. The angle of the scraper varies from

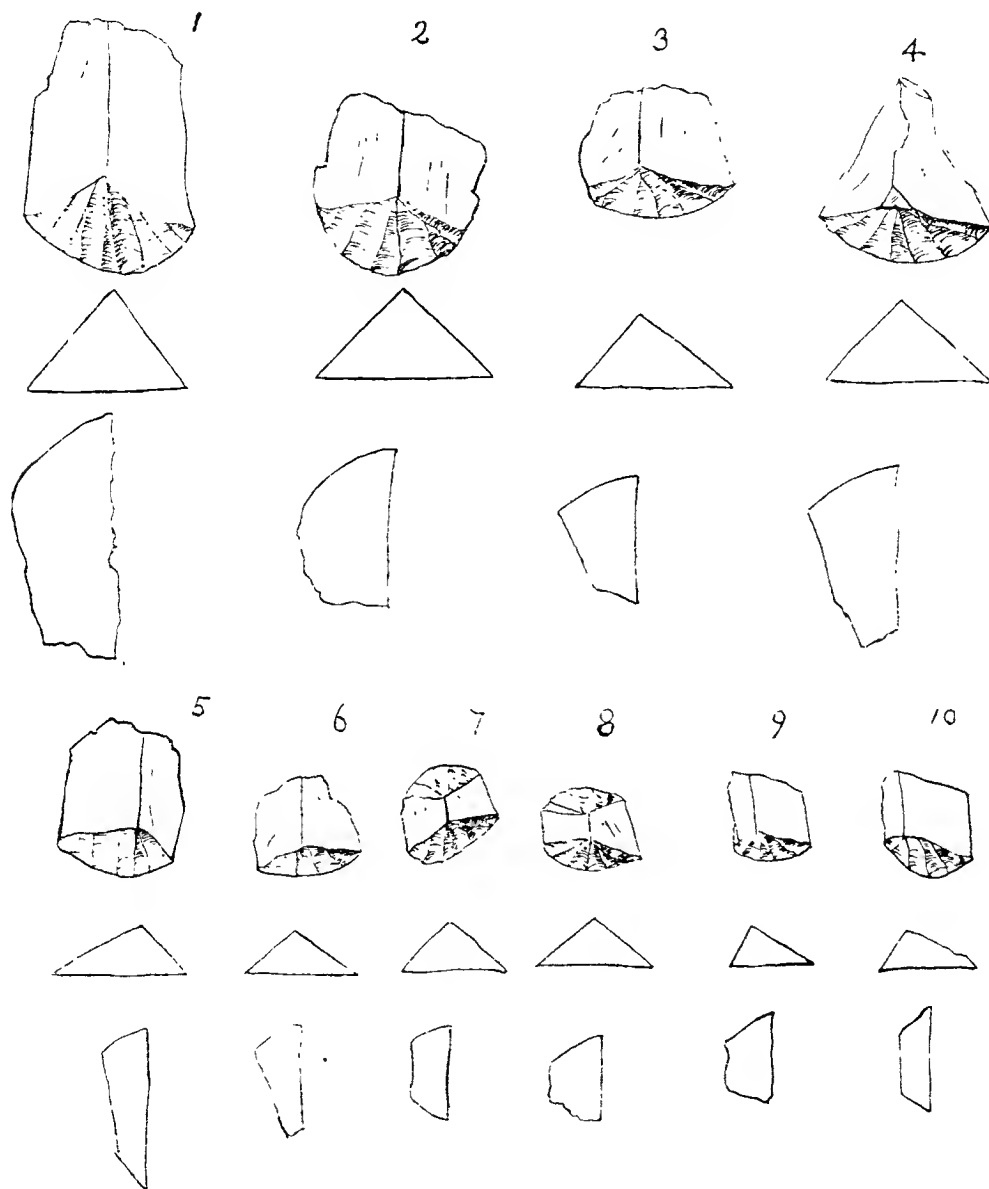


FIG. 3. SCRAPERS, WITH HIGH-ANGLE EDGE.

20 deg. to 90 deg. Many of them could be used as planes: some have a concave underside from butt to edge, and a few have a "gouge" edge. There is a series with a high keel-ridge, and many of these are very short for their size. Some

specimens have a triangular section along the length, tapering to the butt end: these are very thick. The keels are rarely central. Some scrapers have been worked at both ends, or at both sides, and have, therefore, a spade form: others are worked on three sides to a triangular form.

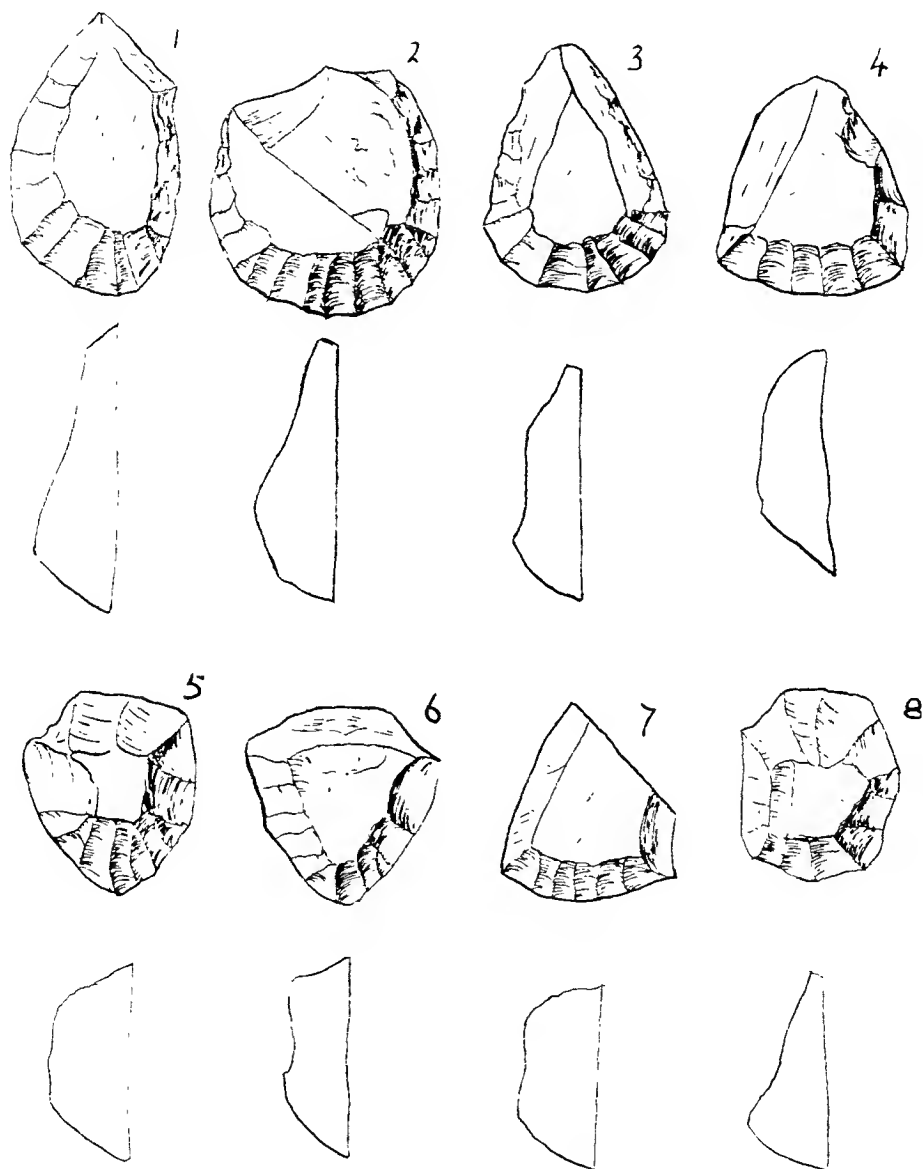
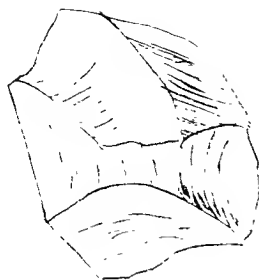
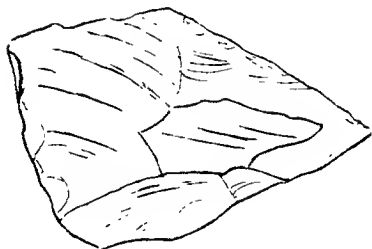


FIG. 4.--LARGE SCRAPERS.

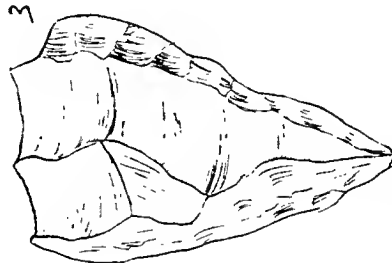
2



1



3



4

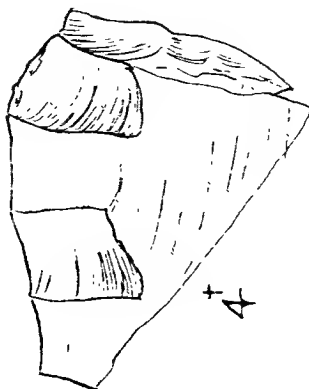


FIG. 6.—POINTS AND FLAKES FROM DEEPEST LAYER. (1.)

1 HALF-FLAKE FROM NEAR LATERITE BED (SEAM).

1



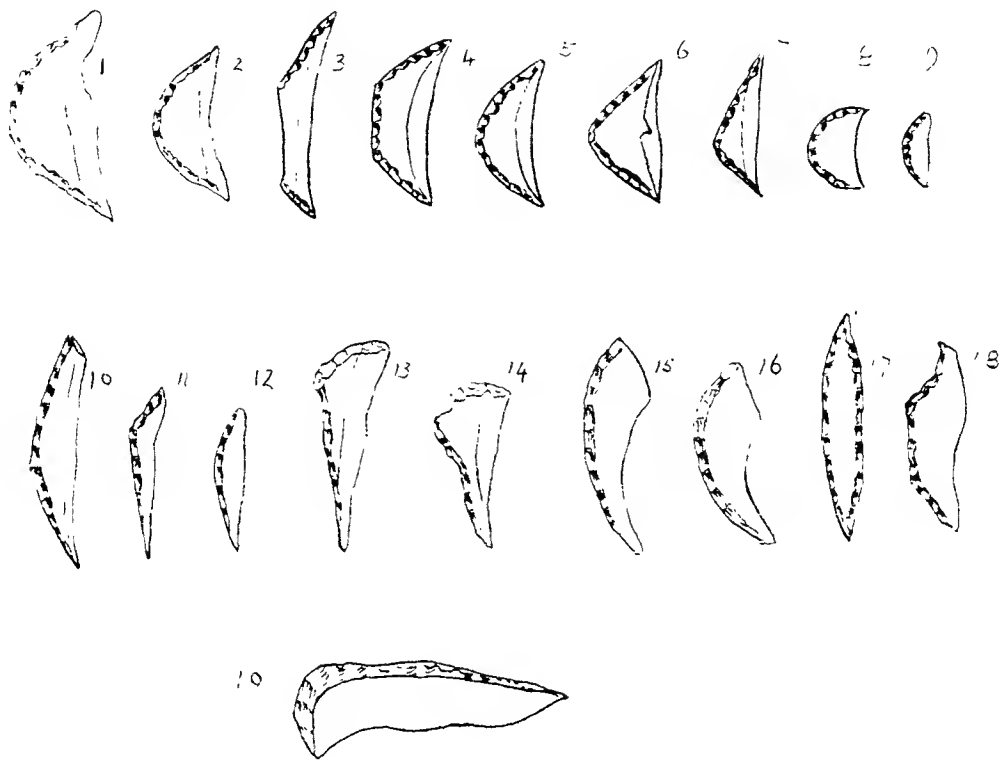
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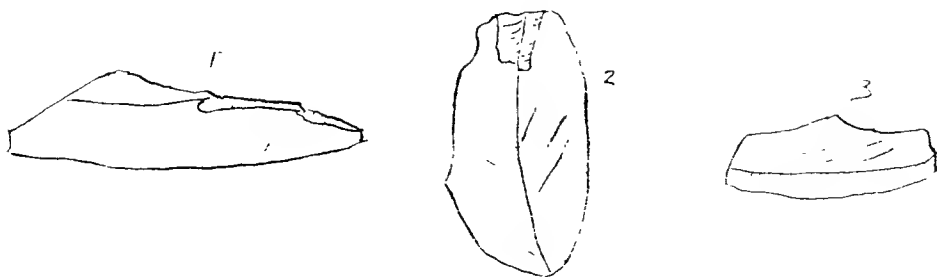
FIG. 5.—THE LARGEST SCRAPERS. (1.)

The Crescents. (Fig. 7.)

The crescent form of implement is represented by some 700 specimens. The largest is 1 inch across and $\frac{1}{2}$ inch deep: the smallest is $\frac{2}{3}$ inch across. Between these two extremes there is every variety of length, breadth, thickness, and contour. Though the edge is in general straight and the horns sharp, in some it is curved either at one end or at both ends: in the former case the shape becomes beak-like. Some



A. CRESCENTS. (1.)



B. SAWS. (1.)

specimens thin out and become almost drill-shape¹. There is nearly always a ridge parallel to the edge. The output of crescents must have been enormous. The 700 derelicts are nearly all undamaged, unless broken across: they are not damaged by use. Possibly, they were used as barbs for arrows. The bow and arrow seems to have been the one arm of the cave men. A "norval" painted on the rock has a very substantial quiver slung over his shoulder. A youth must have been taught how to shoot soon after he had emerged from the crawling stage and have practised making arrows early on in life. I am not inclined to exclude the crescents having been used as lancets. It is a kind of thorns, and to this day the "cutting out" of a thorn is the common surgical operation among the natives. Though another thorn is commonly used to dig out the intruder, yet a knife is preferred.

The Knives. (Figs. 8 and 9.)

A flake trimmed to an acute angle is said to have a cutting edge. Experience, however, shows that the sharp edge of an untrimmed flake though brittle cuts far better than the trimmed variety. There were found a dozen or more implements made from schist, shale, or indurated slate, with jagged edges that will not only cut meat into chunks, but will rip through a thickish stick. The slate, as is usual in Rhodesia, splits not only along the laminae, but also at right angles, *i.e.* across the laminae. For this reason the knives, though generally elongated in form, are sometimes broadly rectangular and almost square. They were made by a process of flaking, but as often as not the conchoidal fracture was arrested and diverted in the direction of the laminae. They may be of unorthodox make, but they are certainly knives, and made by the folk who made the other stone implements.

Borers. (Fig. 10, 11-19.)

Borers are made of the same material as the knives, a needle-like point being obtained by trimming one side, just as in the case of the crescents, which get their sharp points by this method. The best specimens of borers are 2 inches long by $\frac{1}{2}$ inch broad.

Beads.

Ostrich egg-shell was broken up into small squares, and a hole pierced through each piece by drilling from both sides: finally the corners were rubbed off. The finished article is a small disc, with a diameter from two to three times the breadth of the hole.

Arrow Points.

If the bone spikes (Fig. 10, 1-4) were meant to serve as arrow points, and the crescents are to be regarded as barbs, there is a great lack of proportion in the

¹ No. 17 is *sui generis* trimmed along both edges. No. 18 seems to have a handle. No. 19 is the only one of its kind.

finds—200 barbs to one point. The conventional arrow-head was not found: on the other hand, longish splinters of blue stone occurred frequently (Fig. 10: 5-10). The later Bantu iron arrow-head and shank combined measures 6 inches in length.

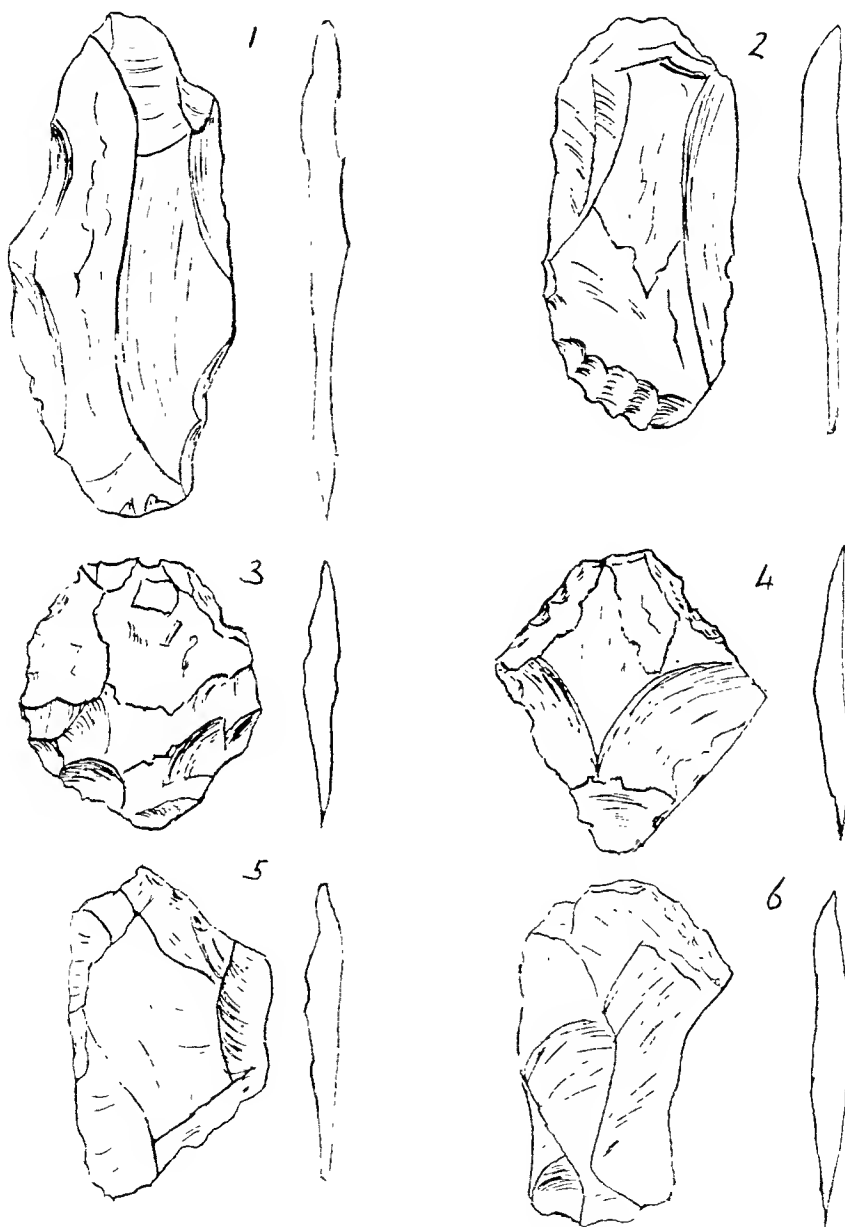


FIG. 8.—KNIVES OF SCHIST OR SHALE. (C.)

The style of culture of the implements argues for homogeneity and continuity in the makers. The grooved type of implement, used as a shaft-straightener, was not discovered, though it is frequently found on the surface.

Hæmatite.

The occurrence of fragments of hæmatite throughout the implement-bearing ground is sufficient evidence that the cave was a rendezvous for the artists who decorated the rocks on the kopjes. Again, the depth at which the fragments are

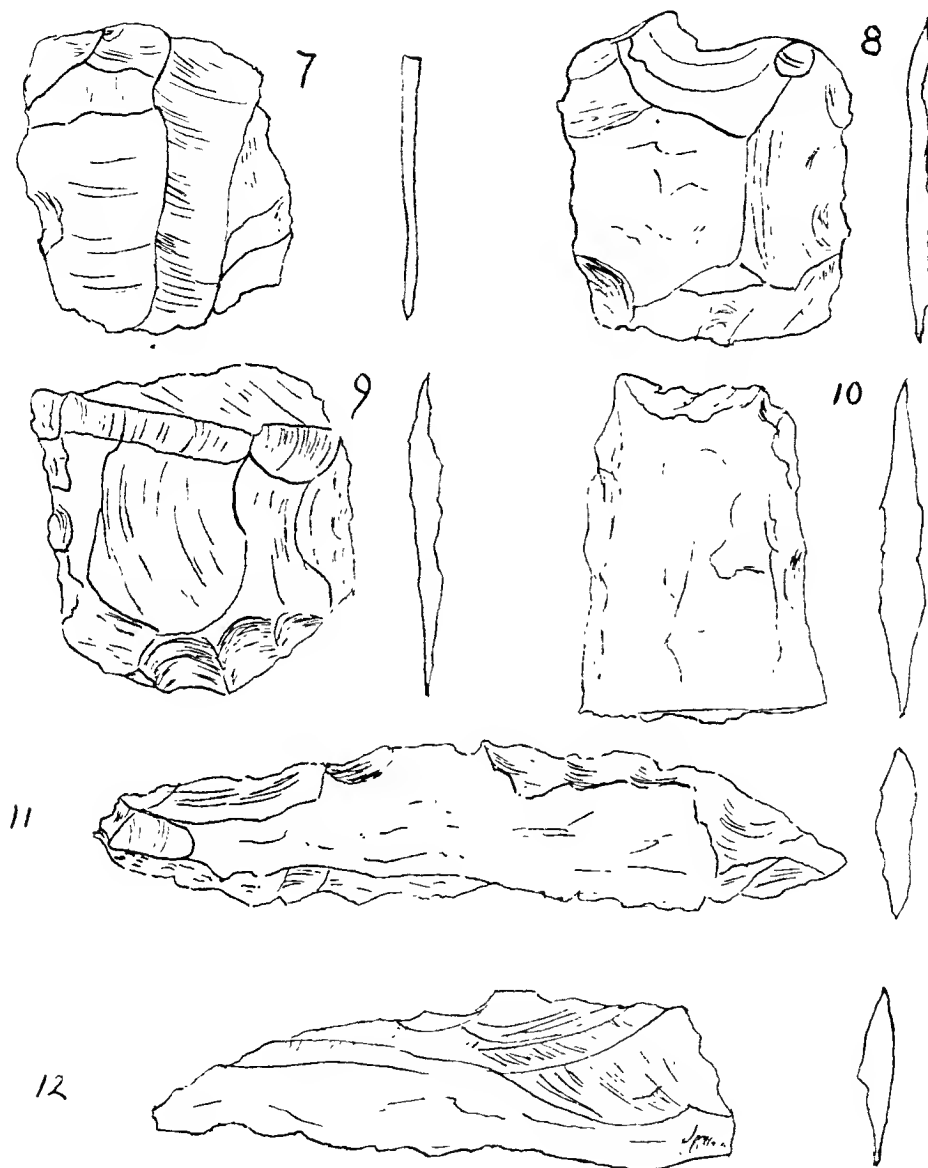


FIG. 9.—KNIVES OF SCHIST OR SHALE. (..)

buried is one clue as to the considerable age of some at least of the pictures. The streak of the hæmatite varies from orange to deep red. Some 20 lbs. weight of this material was sifted out. It is mostly gritty and grained with bands of silica, or is oxidized thinly on the surface of a hard core.

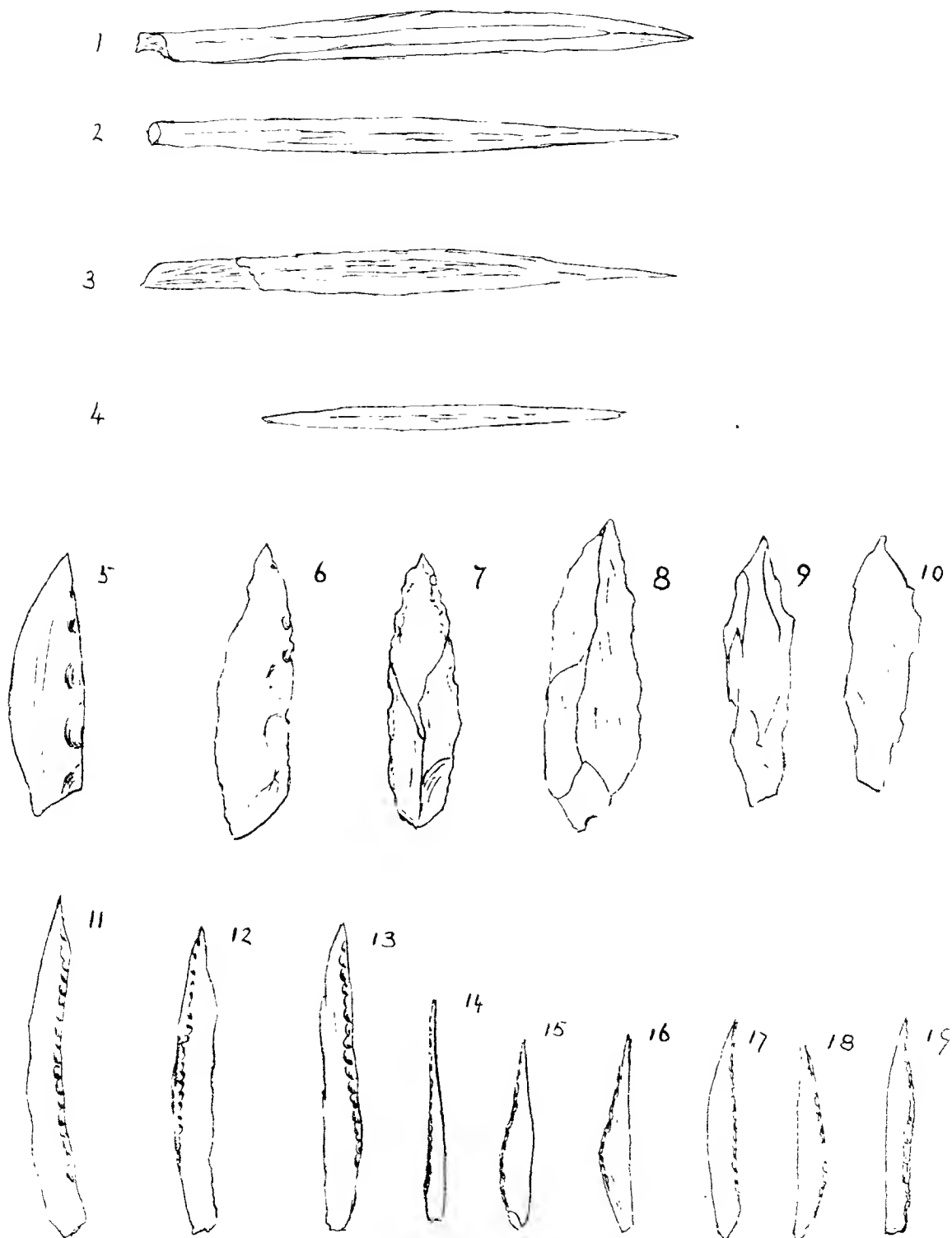


FIG. 10.—1, 2, 4, BONE SPIKES. 3, IVORY SPIKE. 5-10, ARROW-HEADS (?). 11-19, BARBS. (x 1.)

The Material.

The material used for the making of the stone implements was white quartz, quartz crystal in the shape of pebbles or more usually unrolled in its natural form, chalcedony, and chert. This last material is not common in a granite area. In fact, it is so scarce near Gokomere that rolled implements of chert were introduced and broken up to make smaller implements.

GENERAL.

The cave men are thus seen to have been modern in comparison with the makers of the rolled implements. The latter knew the use of large implements of lower



FIG. 11.—COUP-DE-POING DUG UP IN *dh*i NEAR THE SHELTER AT DEPTH OF 3½ FEET. ($\frac{1}{4}$.)

palæolithic culture, though no large implements, with the exception of a few rude specimens, were found in the excavation. Outside, however, in the "vlei," a fine *coup-de-poing* implement in white quartz was discovered at a depth of 3 feet 6 inches (Fig. 11).

It is important to note that deep down in the excavation were found two indurated shale tools which in Europe would have been called unhesitatingly Mousterian points on typological grounds (Fig. 6: 1 and 3). However as specimens of the Wilton industry have also been found at a similar depth, it is not yet possible to demonstrate any sequence of cultures.

Small elongated pebbles were found with both ends deeply abraded. One large elongated pebble has been rubbed flat to a polish at one end.

The cave was a regular warren for rats and rock rabbits, and so one cannot assign with certainty the true depth of any individual specimen. It was somewhat perplexing to find "at depth" an iron wedge that had fallen out of a modern 16-lb. hammer a few years previously. No burial was found, nor were any bones found worthy of report.

It has been said that implements of stone may be taken from the large surface factory sites by the wagon load. I heard the expression first used when the railway was being constructed from the Victoria Falls to Livingstone. There is much truth in the statement, but, first of all, it must be restricted to specially favoured sites. I suppose three-fifths of Rhodesia is in granite areas. I have examined many thousands of square miles of such country during the last twenty-five years, and found that the large lower palæolith is practically absent.

The basement schists, and more especially the banded ironstone, do yield factory sites—there is one 2 miles long and $\frac{1}{2}$ mile wide covered with flakes and rejects. But from such a site, *experto crede*, though I carried off a load from it, only some 20 specimens were finally selected as being worthy to represent the field. A little digging revealed the fact that the factory persevered downwards to a depth of 6 feet, but there was throughout a like average of perfect implements and rejects. The work of the twenty-five years has brought me in a collection that does not fill a Scotch cart!

A PEDIGREE STUDY OF AMERINDIAN CROSSES IN CANADA.

[WITH PLATES XLIX-LIII.]

BY PROFESSOR R. RUGGLES GATES, Ph.D., LL.D., F.L.S.

INTRODUCTION.

THIS paper is an attempt to apply genetical methods to the study of inter-racial crossing. In the anthropological studies which have hitherto been made of racial crosses, masses of anthropometric measurements have frequently been taken, which are capable, when analysed, of furnishing valuable evidence on many points. But it is seldom possible to extract from them the kind of evidence the geneticist wishes to have concerning the inheritance of individual character-differences. Anthropological measurements are quantitative and require statistical treatment. The inheritance of sizes and especially of shapes is the most difficult field in genetics, and much has still to be learned from experiments with animals and plants before it can be clearly applied to man. Such features as the colour of skin, eyes, and hair, or shape of the hair in cross-section, while often presenting qualitative racial differences, also require measurements for a complete analysis of their inheritance, since intermediate grades usually occur in the hybrids. But they have the advantage that the extreme conditions at least are easily recognizable as qualitatively distinct, while this may not be evident with a mean difference in, for instance, stature or cephalic index.

The difficulties of applying the genetical pedigree method to haphazard human matings are very great. Nevertheless, it is so important that this method should be taken up by anthropologists, in addition to the traditional biometric methods of studying racial differences, that I venture to put forward these necessarily very incomplete results. In the biometrical method, the individual is measured as one of a population, but no sufficient account is taken of his relation to others. The purpose of the genetical method is to trace individual pedigrees, and so follow the inheritance of racial differences through successive generations. We shall never have an adequate knowledge of human racial inheritance until this has been done on a large scale with crosses between different races in various parts of the world.

This paper contains an account of observations on inter-racial crosses between whites and Indians in Canada. A single pedigree with various interlacing branches has been followed, and the evidence concerning the inheritance especially of skin colour and eye colour has been made as complete as the circumstances would permit.

I visited Lake Temagami in Northern Ontario (lat. 47° N., long. 80° 5' W.) after the British Association Meeting at Toronto in August, 1924. Our party spent a few days on Bear Island in Lake Temagami. This is a small village, typical of the edge of the hunting and trapping country which extends northwards to Hudson Bay. Lake Temagami is one of many lakes dotted over this glaciated, conifer-wooded country. The inhabitants of Bear Island are chiefly Amerind half-breeds, with a few whites and a few families of pure Indians. Photographs of a number of these families were taken and their pedigrees recorded, observations also being made on their skin colour, eye colour, and hair characters, as well as their features. They are much intermarried, but through the valuable help of Mrs. E. Weir, a white woman who has lived there and knows them intimately and is making a historical study of them, I have been able to get what I believe to be correct information, as well as a number of additional photographs. The pedigrees include the descendants of a marriage between an Indian woman and a white man extending through six generations, as well as intermingled pedigrees from intermarriage of the descendants with other white men and also with various Indians and "half-breeds." The term "half-breed" is universally used in Canada to indicate not merely the result of a first-cross, but for all individuals of mixed descent and more or less intermediate skin colour. Every kind of back-cross with white and Indian has taken place. If the offspring are predominantly Indian in character they are classed as "Indians," though they may be of mixed descent. I am further indebted to Mrs. Weir for several photographs which I was unable to get myself, owing to parties being away hunting, and she has also kindly examined for me the skin, eye, and hair colour of several children whom I was unable to see.

Observations on the results of inter-racial crossing in man are so few and so much in need of extension that it seemed desirable to publish an account of these Indian-white crosses, even though the data are not so complete as one would like. Every effort has been made to ensure and check by correspondence the accuracy of the results obtained. Some of the Indian half-breeds are reticent about declaring their Indian ancestry, and it has only been possible to get correct information on certain points after much interrogation and subsequent correspondence. I can scarcely hope that all sources of error have been eliminated, for crossing between early settlers and the Indians began many generations ago, and it is possible that the proportion of Indian blood in some members of this pedigree may be inaccurately stated. Elsewhere I have pointed out [Gates, 1926] the desirability of collecting data from families in the pedigrees of which the original cross is known to have taken place not more than three or four generations previously, and this paper is published partly in the hope of stimulating more complete records from those who are in a position to make them.

It is a matter of great regret that although inter-racial crossing has been taking place for generations in many parts of the world, very few accurate records of the

results have been made by anthropologists or others, although every generation that goes by increases the difficulty of getting reliable data, because the ancestors are not satisfactorily obtainable more than three or four generations back. Unless one can begin with an original cross, it is impossible to know what combinations of racial factors are present in the ancestors with which a pedigree begins. Despite the considerable number of Indian half-breeds in some parts of Canada and the United States, I know of no anthropological records of such crosses from which the inheritance of features such as eye colour and skin colour can be traced through successive generations. Unfortunately, I could make no measurements of colour, and can only indicate roughly the skin colour.

An important adjunct in future studies of heredity in the Amerinds will be the blood-groups, for, according to Snyder [1926], it is highly probable that pure-blooded Indians all belong to Group I, possessing neither of the agglutinating factors A or B, having become isolated in America before either of these mutations took place. Individuals with A or B are probably of mixed blood.

The whole pedigree of this group, so far as I have been able to obtain it, is given in the charts, and many of the names, which are of interest in themselves as well as being necessary in tracing the many cross-relationships, have been added, as well as notes on the eye, skin, and, occasionally, hair colour. The difficulties of compiling such a pedigree with sufficient assurance of accuracy are very great, and this emphasizes the necessity, wherever possible, of making such records when the original cross has happened not more than three or four generations previously. Such inter-racial crosses have taken place all over the world, and it is very important that anthropologists should realize the necessity of recording the results before so many generations and complicating back-crosses and mixed crosses have occurred that certainty in the data is no longer possible, and the results cannot be unravelled.

In Northern Brazil, where there has been no "colour line" for many generations, the population are largely complicated mixtures of Portuguese, Indian, and negro blood, yet I have found some clear evidence of independent segregation in skin colour, hair characters, and other features.¹ The first generation from a Portuguese father and a South American (Tupi ?) Indian mother has a swarthy yellowish skin, high cheek-bones, coal-black eyes, and jet-black, straight hair. The appearance is what one might anticipate from a Chinese-Indian cross. As first-crosses are still taking place in Brazil, there should be plenty of opportunity to learn the laws of inheritance in this cross.

THE INDIAN TRIBES.

The Canadian Indians concerned in these records belonged chiefly to the Cree and Ojibway tribes, while the whites were French-Canadians, Scotch, English, and others. There appears to be a distinct difference in the physiognomy of the Cree

¹ *A Botanist on the Amazon Valley*, p. 194. (London: Witherby, 1927.)

and Ojibway tribes, the Cree Indians having relatively thin and narrow features, while the Ojibways have rounder faces.¹ The Crees are generally taller and slim, athletically built, with longer heads, higher foreheads, narrower noses and long upper lip. The Ojibways look more stodgy and less intelligent with their rounder heads, fleshier faces, low brows, squat noses, and rather thick, loose-hanging lips. They are inclined to be lazy, improvident, and unreliable, while the Crees, who have firmer lips, are thrifty and show greater ambition under white influence. As regards their earlier condition, Morton [1839] states that "they seem to be among the most intelligent of the northern tribes: brave in war, and faithful to the obligations of friendship." The Crees are mostly of the Protestant faith, under the influence of the Anglican Church, while the Ojibways are mostly Roman Catholics.

These Indians apparently always have intensely black eyes and very dark skin, although this varies to some extent in degree of pigmentation, even in the same tribe. Some tribes appear to be predominantly dolichocephalic, others meso- or brachycephalic, the latter probably representing a more recent invasion from Asia which gradually spread from Behring Straits diagonally across North America, partly mingling with the dolichocephals, and partly replacing them and pushing them into peripheral positions, as shown by old skulls buried along the Atlantic coast and on the islands off the coast of Southern California.

A few remarks concerning the present conditions of the Canadian Indians may be made here. The facts are taken chiefly from the Annual Report of the Department of Indian Affairs, Ottawa, 1926. The great majority of the Indians in Ontario are Ojibways (Ojibewas or Chippewas) of Algonkian stock, but the Parry Sound District Indians are Mohawks of Iroquoian stock. The aborigines of Manitoba are mostly Ojibways, but there are a few bands of Swampy Crees, the Crees also belonging to Algonkian stock. In Saskatchewan, some of the Indians are Swampy Crees, Plain Crees and Ojibways. Alberta has one band of Ojibways and a few Plain Crees, while there are a few Crees in the North-West Territories. This will give some idea of the present distribution of Crees and Ojibways. According to C. Thomas [1906], the Ojibways were originally the largest tribe north of Mexico. They ranged from Hudson and James Bays to Lakes Superior and Huron, as well as the southern shore of Lake Superior, and those from the latter area drove out the Sioux to the western plains. Their cephalic index [Haddon, 1924] is given as 80 for the western Ojibways and 82 for the eastern. The Ojibways north of the Great Lakes were more peaceful than other tribes, and remained relatively out of contact with civilized man until later. It therefore appears probable that these Ojibways of Northern Ontario are of purer blood than those of Minnesota, which have been studied by Hrdlička and Jenks, to whose investigations reference will be made later. The entire tribe was

¹ It is possible that these differences represent partly the increasing fatness which overtakes Indians when they adopt civilized habits and habitations.

estimated to number 25,000 in 1764 and 30,000 in 1843. In 1905 the estimated numbers were the same, equally divided between Canada and the United States.

The Crees hunted over the region between Moose River (south of James Bay) and Churchill River (west of Hudson Bay), and westward to the head of Beaver River and thence south to the hunting grounds of the Dakotas. They thus occupied the country north and north-west of the Ojibways. Their numbers in 1905 were estimated at 15,000.

Morton [1839], who gives a picture of the Indian tribes in North and South America in his time, states (p. 177) that the "Chippeway nation" then roved in bands over the country around Lake Superior and westward to Lake Winnipeck (Winnipeg) and Lake of the Woods. There were camps on the Assiniboin and Saskatchewan Rivers and at Sault Ste. Marie. But the people were thinly scattered and their numbers had been rapidly diminished by war and smallpox. While not naturally very strong, they were active, inured to exercise, good hunters and fishers. They were generally tall and thin, and said to be easily distinguished from the Missouri Indians by the absence of an aquiline nose, which is characteristic of the latter. Little seems to have been known of the more northern Crees at this time, as they are not even mentioned.

Hrdlička [1916], in a study of the Chippewa occupying American territory, states that they are the largest Algonkian tribe, numbering over 25,000. According to their carefully preserved traditions, the ancient abode of the tribe a few centuries before the whites came was along the northern part of the Atlantic coast south of the St. Lawrence, but there are vague notions of an earlier migration from the west or north-west. Fighting with the Iroquois afterwards led to their extension westward to the Great Lakes, and in the 17th century, being provided with fire-arms by the French, they continued their conquest westward and southward until they occupied large parts of Michigan, Wisconsin, Minnesota and North Dakota. The main body, numbering about 12,000, are now found on reservations in Northern Minnesota. They are largely of mixed blood, owing chiefly to earlier mixture with the French.

Mixed-blood Indians were authorized by a United States law in 1906 to sell their Government lands. So many disposed of their land, or were cheated out of it, that an enquiry was instituted and many of the reservations in Minnesota were visited by anthropologists. Hrdlička examined 696 Chippewa from the White Earth reservation, of whom only 59 (17 males and 42 females) of pure blood were available for examination. Many anthropometric measurements were taken. The cephalic index was found to be 79·6 for males and 80·1 for females, only one-tenth of the number being mildly brachycephalic, the remainder dolichocephalic to mesocephalic. As the Algonkians are shown by older skulls to have been generally dolichocephalic, the broad heads have probably come in later through intermixture

with brachycephalic peoples. The nose was aquiline in half the men, but in the women usually straight, concave, or concavo-convex.

A study of Ojibway half-breeds in Minnesota was also made by Jenks [1916]. He examined over 300 Ojibways, but pure-blooded ones were noticeable by their absence. The following features were determined:—Head-breadth and length; face-breadth and height; nasal-breadth and length; colour of eye, skin, and hair; texture and quality of hair; and shape of incisors; but only the index $\frac{\text{face-breadth}}{\text{head-breadth}} \times 100$ is reported upon. This was taken from measurements of the

distance between the zygomatic arches and between the parietals. The index so obtained is believed to be as determinative as any of the proportion of Indian ancestry. In 24 men and 19 women believed to be of pure blood, these indices were respectively 97.19 and 96.05, while occasionally it exceeded 100. In French and Scotch, the races with which most intermixture has taken place, the indices for men were respectively 90.85 and 90.34, and the mixed-bloods occupied intermediate positions.

It is clear that intermixture between Ojibways and whites has been taking place cumulatively in the Lake Superior region since about 1660. The Hudson's Bay Company was organized in 1670, and for two centuries dominated particularly the northern part of this area. In 1787 the North-West Company of Montreal was founded, and in 1809 the American Trading Company. Traders from these companies roamed over this region, and nearly all of them had one or more Indian wives. Some of the descendants of these alliances belong to well-known and wide-spread families. The Indians in the new Northern Ontario, including the Temagami district—a region opened up in recent years by the building of the Canadian Northern Railway—were doubtless more isolated, and therefore freer from inter-crossing with whites. The history of the Temagami families studied, however, shows a very considerable amount of moving about by individuals in the area from James Bay southwards to the settled parts of Ontario.

Another important anthropometric study of the Amerinds to which reference must be made is that of Sullivan [1920] on the Sioux tribes. His observations are of particular interest, since the measurements he records give clear evidence of segregation in crosses, particularly as regards some of the usual anthropometric measurements and indices. This is all the more significant, since the author writes from the usual anthropometric point of view, and is evidently quite unacquainted with the modern genetical conceptions. The value of his work might have been considerably enhanced if he had grasped the modern genetical point of view, in which partial or complete dominance and independent segregation of different characters is a well-known fact. Among 539 "full-blood" Sioux males, he found 1 with grey and 5 with blue eyes. These might have been descendants from crosses with the neighbouring Mandan Indians, some of whom had light skin and blue

eyes (*see* p. 527) : but the fact that they had the hair colour and hair form as well as the facial width of pure-blood Indians, confirms my view that independent segregation of characters takes place in these crosses.

The heights for 537 male Sioux and 157 females of pure stock fall close to a normal frequency-curve, but the half-breeds show much more irregularity in the distribution of their heights. In the case of other anthropometric measurements, some show greater variability in the half-breeds, some less. Sullivan concludes that it is dangerous to rely wholly upon the variability of the cephalic index as a test for racial intermixture, or on the coefficient of variability as an index of homogeneity of type. The cephalic index was found to be 79.6 for men and 80.5 for women.

The results show in general that the Sioux are in very close agreement with the Chippewa [*Hrdlička*] in measurements and indices, also in form of nose and profile. They are among the very tallest of the American Indians.

Of greatest significance from our present point of view were the results of the biometrical treatment of face-width. Those of mixed descent in which the Indian ancestry was $1/4$, $1/2$, $3/4$, etc., are treated separately and give in each case a bimodal curve. An intermediate type of face is found from the measurements to be "a rare occurrence," and the bimodal curves are in themselves clear evidence of dominance and segregation between broad and narrow face, either a single factor difference or possibly a group of linked factors being involved. High correlation is also found between face-width and head-width, the latter measurements also falling into a bimodal curve. In other words, we appear to have in these crosses marked alternative inheritance between the broad head and face of the Indian and the narrower head and face of the white race.

Apart from this case, in which we may suppose that width of head and face are controlled by one pair of factors or by two closely linked pairs of factors, Sullivan found a lower correlation in half-breeds in those measurements in which Indians and whites differ most widely. This result would again be expected if independent inheritance is taking place. Thus, without intending it, Sullivan has clearly proved from his careful studies that segregation takes place in the time-honoured biometrical measurements, such as face-width and head-width.

The total Indian population of Canada in 1925 was 104,894,¹ Ontario having 26,706, the largest number in any Province. Many of them live on Indian reservations, which they are free to leave, however, whenever they wish. Many Indians in Ontario are engaged in farming on the reserves, but in the new Northern Ontario hunting, fishing, and trapping are the chief sources of livelihood. Many serve as guides and canoe-men : some bands in the wild northern part of Ontario are nomadic, living in tents during the greater part of the year, and growing potatoes and vegetables ; but the great majority now have simple wooden houses. The incomes

¹ The facts in this paragraph and the next are taken from the Annual Report, Department of Indian Affairs, Ottawa, 1926.

of the Ontario Indians are derived chiefly from farm products, wages, hunting, and trapping. They are adepts at making such articles as snow-shoes, axe-handles and hockey-sticks, and the squaws also make and sell baskets, moccasins, etc. Pure-blooded Indians also receive from the Canadian Government a small annuity. The average annual income per head of the Indian population in Ontario, including annuities and Indian Trust Funds, I find to be about £22 10s.

The health problem of the aborigines is a serious one. The vast majority of deaths from disease in adults are now from tuberculosis. Tribes isolated from civilization appear to be free from it, and the first generations in contact with whites suffer most in this respect. There are also increasing difficulties in relation to game. In the region between Lake Winnipeg (Manitoba) and Hudson Bay, many of the Indians have to go 300 miles, a journey of several weeks by dog train, to reach hunting grounds, owing to the depletion of the game, especially beaver, musk-rat, and foxes. In these circumstances an Indian must either spend his whole winter away from his family or take the family with him. The latter course deprives his children of school, and the necessary credit for a long expedition is also difficult to arrange, though the Hudson's Bay Company in many cases supply the family with all necessaries in advance. As skins become rarer and more valuable the white trapper penetrates northwards, and the Indian cannot compete with a man who is not only more astute and energetic, but frequently less scrupulous, in his care for the future of the game areas. This problem can only be solved by removing the Indians to areas where they can take up agriculture or by creating hunting reserves for them, such as now exist in the North-West Territories.

THE PEDIGREES.

Galton's system of reckoning ancestry is used in this paper as the most convenient for the purpose, but there is no doubt that the Mendelian conceptions of dominance and segregation apply to man as well as to plants and animals. [See Gates, 1923.] The use of Galton's system of notation does not imply that blending inheritance occurs.

The pedigree studied may begin with a French-Canadian belonging to the Hudson's Bay Company who married a pure Cree Indian woman. One of their offspring was Betsy Naieu, who had black eyes and doubtless a dark skin. She married another "French-Canadian," Valentine Sandis (Pl. LIII, fig. 2).¹ Betsy Naieu had

¹ Further investigation, together with the portrait reproduced in Pl. LIII, fig. 2, discloses that Valentine Sandis was not pure white as formerly stated, but that he had a (unfortunately unknown) fraction of Indian blood, as shown by the pedigree in Chart VI. His grandfather was a Frenchman, Sabre or Sabreur, and his grandmother a "half-breed." Their daughter married a Scotchman, Sandis or Saunders, and Valentine Sandis was the son of these two. The fraction of Indian blood in all his descendants will therefore be a little greater than stated in the text on the assumption that he was pure white. As can be seen from the portrait, he showed distinct traces of Indian features and his eyes were probably dark brown.

24 children and died about 1889. Three of the daughters left descendants who come into this pedigree (*see* Chart I). The remainder of the children either died or migrated elsewhere, so their descendants are untraced. These three daughters would then be $1/4$ -Indian. Nancy married Malcolm McLean (Pl. XLIX, fig. 1), a Scot from Stornoway, Hebrides (probably blue-eyed), and they have four generations of descendants, several of whom married "half-breeds." With regard to the latter, whether their fraction of Indian ancestry is $1/2$, or $1/4$, or some other fraction, is often uncertain, as I have not been able to get full records of their ancestry. Nancy's sister, Maggie Sandis (Chart I. II. 2),¹ married John Friday, a pure Cree Indian. Their four sons and two daughters all had swarthy skin and black eyes. Ellen Friday ($5/8$ -Indian: *see* Chart I) married Joseph Turner (Chart I. IV. 1), who had $1/16$ -Indian blood, and they have two generations of descendants. Their children number five sons and one daughter. Compare the photographs of John (Pl. XLIX, fig. 4), his sister Bessie (Pl. LI, fig. 4), and younger brother Will (Pl. L, fig. 5). The eldest son, John Turner, Jr. (Chart I. V. 1), married Maggie Quill, whose mother was a Cree half-breed (father unrecorded, but probably an Ojibway or a half-breed). They are shown with their 3 children in Pl. XLIX, fig. 4. The grandparents of John Turner, Jr., are photographed in Pl. XLIX, fig. 2, and again in Fig. 3, which shows John Turner, Sr. (right), his wife Mary McLean (left), and Betsy Paul, her maternal aunt (Chart I. II. 3). John Turner has blue eyes faded to grey. His father was English and his mother Scotch. He lived for a number of years among the Eskimo as an interpreter. His wife, as the pedigree shows, was $1/8$ -Indian—this is indicated in her high cheek bones, slightly by her skin colour, and also probably in her quiet character: her eyes are brown.

John Turner, Jr. (Chart I. V. 1), and his sibs, by the Galtonian system of reckoning ancestry, would be $11/32$ -Indian blood: he has dark-brown eyes and swarthy skin. His wife (*see* Pl. XLIX, fig. 4) has black eyes and hair, Cree features, and a skin of medium pigmentation. Of the 3 children, Jane (left) has black eyes and dark skin. Ellen has black eyes and a fair skin but not pure white, her hair is not so black as the other two: Kate (the baby) has black eyes and a dark skin. There is then some indication of segregation in skin colour in this family. Pl. L, fig. 2 is a nearer view of Jane and the baby in her papoose's cradle. The very dark eyes and hair can be well seen, but it must be pointed out that the apparent skin colour in a photograph is often quite misleading.

Returning to the third generation, Betsy Sandis (Chart I. II. 3, and Pl. XLIX, fig. 3, and Pl. L, fig. 1) married Old Paul, who was stated to be pure Indian, but his photograph shows his white blood. His father and mother lived in the bush, far from white people, and the father brought his skins to a Hudson's Bay Company trading-post. Old Paul had black eyes. Their single surviving son

¹ "II. 2" means No. 2 in generation II of the chart.

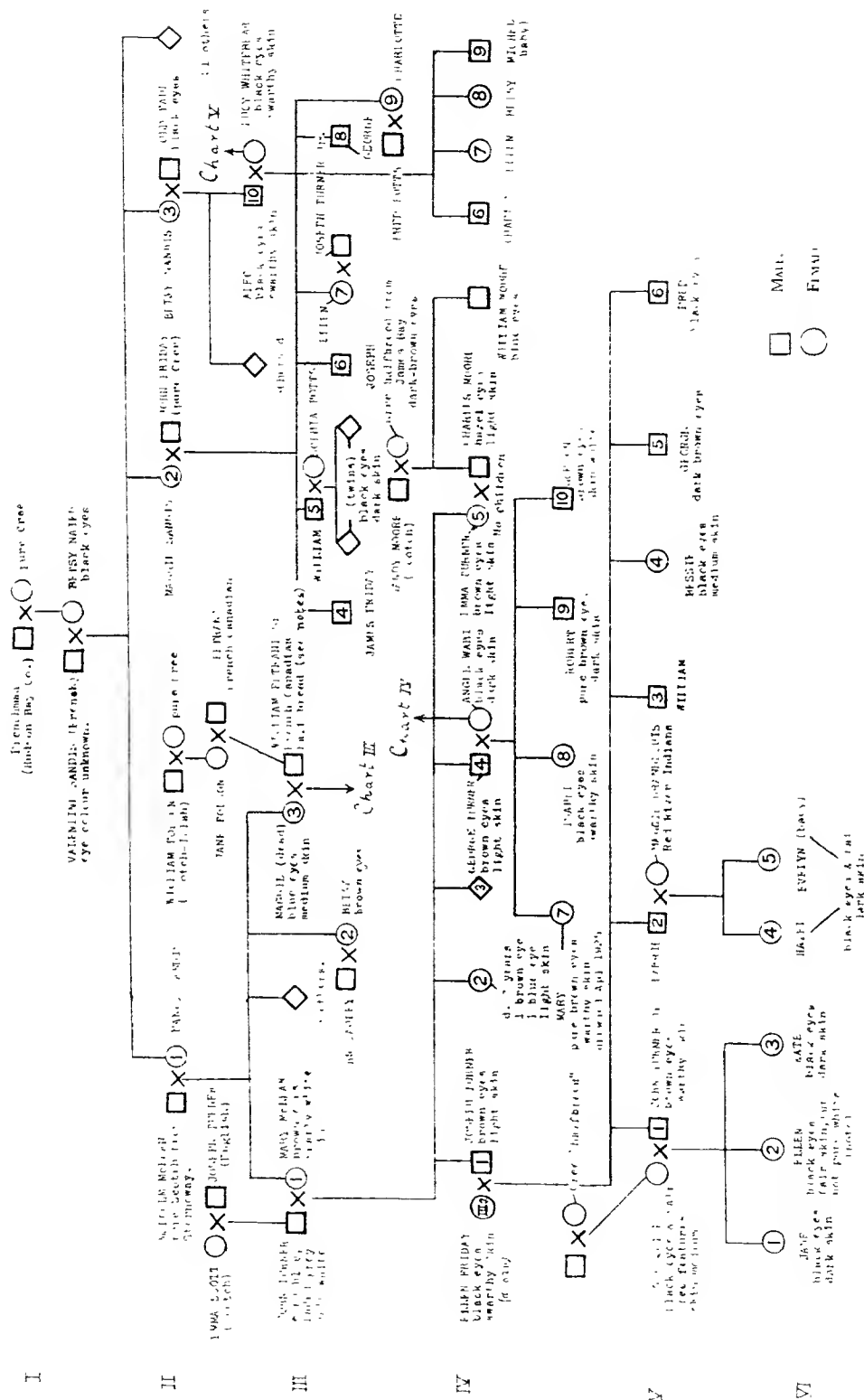
Alec (Chart I. III. 10) has black eyes and swarthy skin. He married Lucy Whitebear (Chart V. II. 1, and Pl. L. fig. 1 (left), holding her baby), whose parents were both pure Indians of the Ojibway tribe (*see* Chart V). They have 4 young children, who are like the parents in eye colour. Betsy Paul, who is 1/4-Indian, has a much lighter skin than her daughter-in-law. Note also the long ringlets of hair, which no pure Indian would possess. Lucy Whitebear's sister Cecile (Pl. L. fig. 3) married a white man with blue eyes, but I have been unable to get records of their 5 children. Another sister, Catherine (Pl. L. fig. 4),¹ married Pete Missabie, like herself a full-blooded Indian: his age is about 67 in the books of the Hudson's Bay Company, but no Indian knows his own age exactly. Both he and his wife receive Treaty Money from the Indian Department of the Canadian Government as pure-blooded Indians. Of his mother there is no record. His father, Dan Missabie (Pl. LIII. fig. 3), was a Parry Sound Indian, and is reputed to have been 127 years old when he died. The photograph, taken in 1921 (age 125 ?), shows his white hair, and leads one to doubt his pure Indian descent. He was of great strength and endurance even among his contemporaries, and is said to have hunted originally, at the age of 18, over the site where the city of Toronto now stands. The area is stated to have been at that time bush land with a single inhabited shack. Dan Missabie has many children, including two named Sophie who were born about forty years apart. Sophie I married Antoine Katt (*see* Chart IV): Sophie II married Harold Guppy (Chart V).

Pl. L. fig. 4 shows Pete Missabie's wife (Catherine Whitebear), who appears to be pure Indian, her mother, and some Indian children: in features and mentality they appear to be characteristically Ojibway Indian, with dark skin, black eyes, and straight black hair. (*Cf.* the sister Lucy in Pl. L. fig. 1.) Hannah Missabie, who married Charles Potts (Chart II) and died in 1923, had a lighter skin, though the eyes and hair were true to the Indian type. Her father may have been a half-breed, as such illegitimacy is common.

Descendants of the Cree Indian John Friday are intermarried with the Potts family of "Moose Factory Indians," and the latter is connected by marriage with the Missabies of Parry Sound and the Whitebear family of Ojibway Indians. (*See* Charts I, II, and V.)

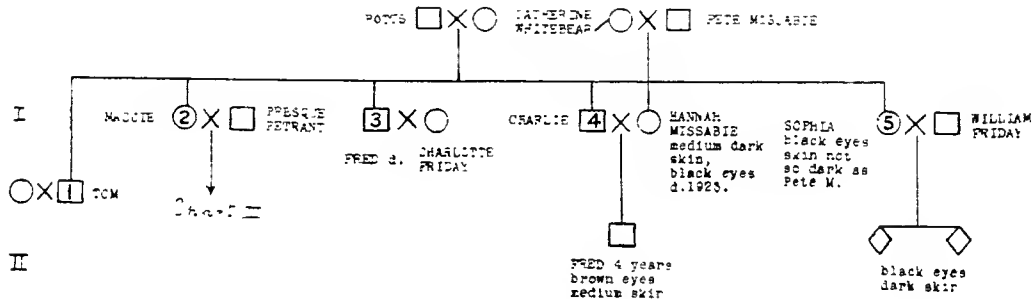
In the third generation, Mary McLean (Chart I. III. 1), whose great-grandmother was a Cree Indian, her grandfather and great-grandfather French, and her father Scotch, has brown eyes and a nearly white skin (Pl. XLIX. fig. 2): her sister Betsy McLean also has brown eyes; but her sister Maggie, who is dead, is said to have had blue eyes and a medium skin colour. Judging from her descendants, this must have been so. Pl. LI. fig. 1, shows her and her husband, William Petrant, taken some years ago. Of her ancestors, her Scotch father is

¹ It will be noted that of the three full-blooded sisters, Lucy, Cecile and Catherine Whitebear, Cecile differs markedly in features from the other two.



most likely to have had blue eyes, though, if this record is correct, one of the French ancestors should also have had them, since blue is recessive to brown. Mary McLean married a blue-eyed white man, John Turner, Sr. (Pl. XLIX, fig. 2), of Scotch-English descent, and of their 5 children, Joseph (Chart I. IV. 1) and George have brown eyes and a medium skin: a girl who died, aged 7, had one blue and one brown eye and a light skin: while Emma (Chart I. IV. 5: see Pl. LI, fig. 3) has brown eyes and a light skin. There is therefore some evidence of segregation in this family.

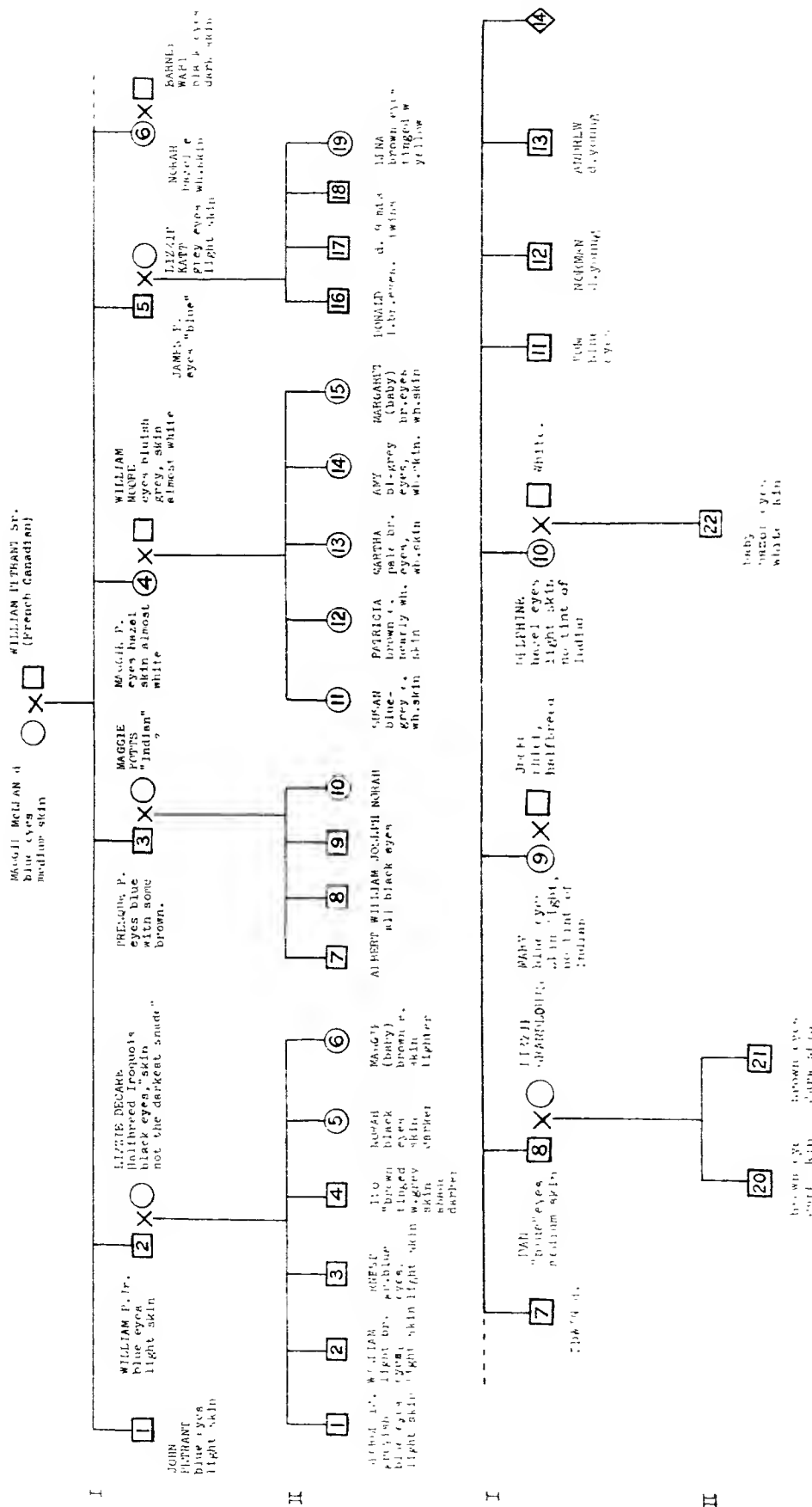
The fifth-generation family of Joseph Turner (Chart I. IV. 1), who had 1/16-Indian blood, and Ellen Friday who was 5/8-Indian, number 6. They have then 11/32-Indian blood, with medium-dark skin, and eye colour which is recorded as black for two and dark brown for two. John Turner (Chart I. V. 1), already referred to, is photographed in Pl. XLIX, fig. 4: Bessie (Chart I. V. 4) in Pl. LI, fig. 4: and Will (Chart I. V. 3) in Pl. L, fig. 5. There is no evidence of segregation in this family.



(CHART II.—"MOOSE FACTORY INDIANS.")

The family of George Turner is interesting for comparison: they are much younger in age. He married Angel Wabigishik, a name which is usually shortened to Wabi—her ancestry is given in Chart IV, and will be referred to later; she has black eyes and a dark skin. Pl. LI, fig. 2, shows Angel Wabi with her white-skinned child Gordon and her husband George Turner. The child proves, on full inquiry, to be the son of a man who was 3/16-Indian, but had a lighter skin than George Turner, who was 1/16-Indian. In any case this shows segregation, since the mother is about 3/4-Indian and dark. Mary and Robert (see Chart I) had pure brown eyes and dark swarthy skin: Isabel has black eyes and possibly darker skin: while Gordon has brown eyes, white skin, and light-brown hair. Mary was drowned in April, 1925, by going through the ice on the Lake in a dog-sleigh.

The ancestry of Angel Wabi is shown in Chart IV. The Indian name Wabigishik means "white cedar tree." Angel Wabi's father's father had a "trace of white blood," and married a French-Indian half-breed woman. Here it is impossible to trace either of the ancestors back to an original cross. One sometimes wonders whether many of the modern Indians are really of quite pure descent,



seeing that crossing began so early, and has gone on more or less ever since. The children of this pair were Kichessio (Chart IV. I. 1. and Pl. LII. fig. 1), with brown eyes and light skin. Angus, John, and Nancy. The first married John Katt, and their 17 children included Michel and Antoine. Lizzie Katt, who married James Petrant (see Charts III and IV) is the daughter of Michel (Chart IV. III. 1); she has grey eyes and a light skin. Antoine married Sophie Missabie I (Chart V. I. 1), sister of Pete Missabie (Chart V. II. 2). Their 2 sons had the black eyes and swarthy skin of their mother. John Katt, Jr., the brother (Chart IV. II. 3), who has very dark eyes, medium skin colour, and full lips, married Jane Albany (Pl. LII. fig. 1 (left)), with dark-brown eyes, medium skin colour, and hair not quite black. Her mother was Jane Benoir, a French-Ojibway half-breed now dead; and her father, Pete Albany, whose Indian name is Warbun Nichinabie (white Indian), was evidently a half-breed. The child has since died.

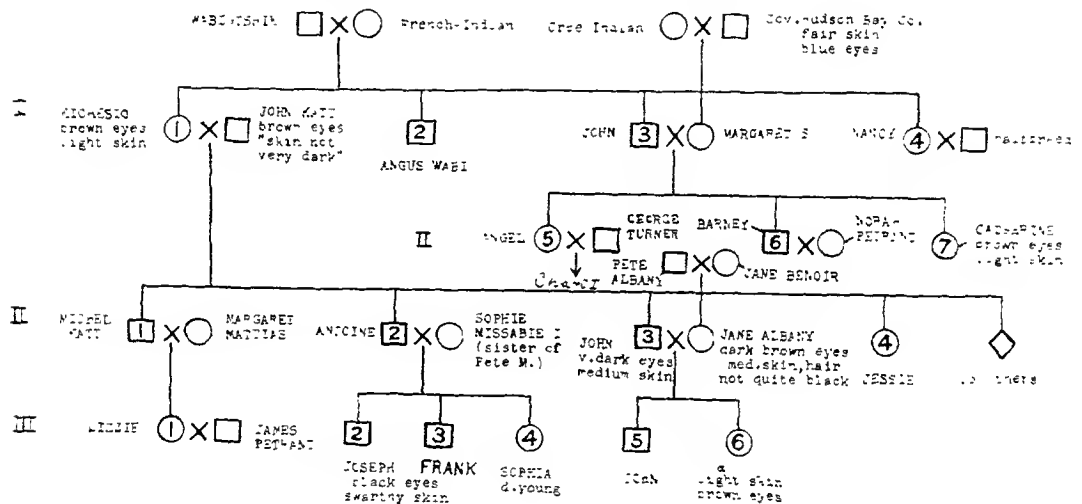


CHART IV. — ANGLI WABI TREE.

Angel Wabi's mother was the illegitimate child of a Governor of the Hudson's Bay Company (a Scotchman with fair skin and blue eyes), and a Cree Indian woman of Temiskaming, and was therefore $1/2$ -Indian. Her father, John Wabi, was probably less than $1/2$ -Indian. George Turner, her husband, was $1/16$ -Indian (see Chart I). His features (Pl. LI. fig. 2) show very little Indian character, but his hands and face are burnt dark by exposure to the weather. His skin, where unexposed, is light but definitely pigmented, like that of his brother Joseph, his sister Emma, and his mother Mary McLean; this can only be accounted for by the presence of a definite undilutable factor for colour. Angel Wabi's sibs are Barney (Chart IV. II. 6), who married Norah Petrant (Chart III. I. 6), and Catherine, unmarried, who has brown eyes and a light skin. Catherine thus has distinctly lighter skin and eyes than her brother and sister—another case of

presumable segregation, *i.e.* loss of one factor for pigmentation but without the appearance of blue eyes or white skin. The evidence indicates that, as with negro-white crosses [Davenport, 1913], at least two independent factors for pigmentation are present. Since blue eyes never appear with full-coloured skin, it appears probable that one at least of the pigment factors affects both eyes and skin.

The next section of the pedigree we may consider is the Petrant family (Chart III). William Petrant, Sr. (Pl. LI, fig. 1, and Pl. LIII, fig. 1), is descended from William Polson, who was half-Irish and half-Scotch (*see* Chart I). Polson married a pure Cree Indian woman, and the daughter, Jane Polson, married a French-Canadian. William Petrant, Sr. is thus 1/4-Indian; he has grey-blue eyes with yellow pigment around the pupils, and his skin is "light, not tinted at all." (Pl. LI, fig. 1, shows him and his wife, from an old photograph.) Not having seen him, I cannot judge whether his skin is "pure white," but this appears to be clear segregation.

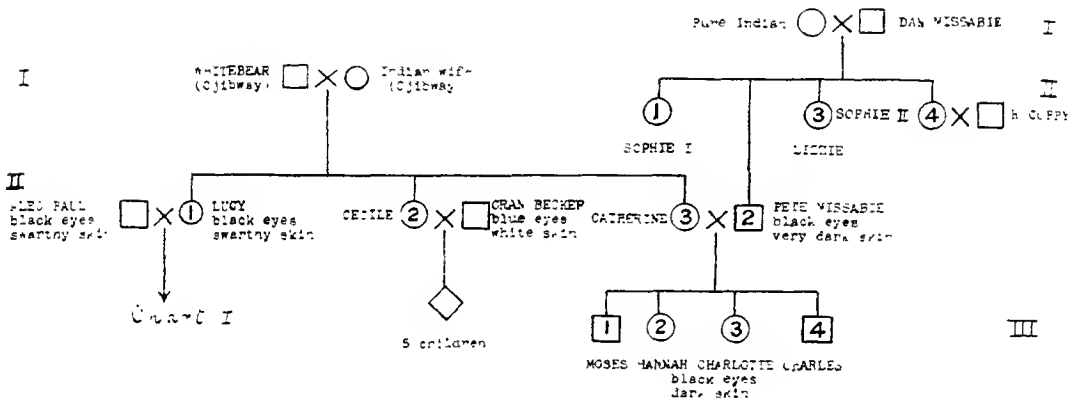


CHART V.

Note also the full beard, which an Indian would not have. He married Maggie McLean, who was 1/8-Indian, with blue eyes and a medium skin colour; she resembles her sister Mary McLean in general physiognomy (*see* Pl. XLIX, figs. 2 and 3). They had 14 children (*see* Chart III), who are 3/16-Indian. Three of the sons, Presque, Dan, and James, are shown in Pl. LIII, fig. 2; they agree in having blue eyes, with spots of yellow pigment around the pupil like their father, but also a considerable fraction of pigment in their skin. Independent segregation of eye colour and a factor for skin colour is indicated, but the segregation may not be of a single factor in either case. In features, Dan looks more Indian (Cree type, with thin, narrow features), and the other two more French-Canadian. Three other sons, John, William Jr., and Tom, appear to be very similar, with blue eyes and a light skin. The 4 daughters also have hazel eyes (*i.e.* blue, with a little brown or yellow pigment). Maggie has "no tint of Indian": Delphine (Chart III, I. 10) married a white man, and their

child has eyes like its mother and a white skin. This large family appears to be relatively uniform in eye and skin colour, but the daughters appear to have somewhat lighter skin than the sons. Norah and Delphine are pure white, while Maggie (Chart III. I, 4) is almost white. This pedigree is a striking case of segregation in the second and third generations from a cross.

William Petrant, Jr., married Lizzie Decare, an Iroquois half-breed with much white blood: she has black eyes, but not a very dark skin, and white features. Of the children, George and Ernest have greyish-blue eyes and a light skin, while Leo has more brown in his eyes and his skin is a shade darker. Norah is exactly like the mother in eye and skin colour, while Maggie has brown eyes and a lighter skin, and William (Chart III. II, 2) light-brown eyes and a light skin. Segregation of minor factors appears again to be indicated.

Presque Petrant married Maggie Potts (Chart II. I, 2), who is of undetermined, but largely Indian, ancestry. The 4 children all have black eyes like their mother. James (Chart III. I, 5) married Lizzie Katt (Chart IV. III, 1), who has grey eyes and a light skin. The eye colour of the 2 living children can be seen from Chart III, one being light brown, the other dark brown.

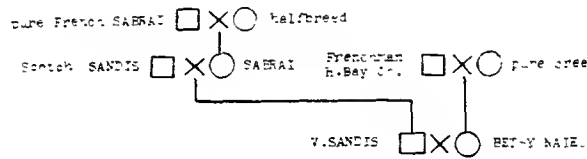


CHART VI.

The family of Maggie Petrant (Chart III. I, 4), who married William Moore, is interesting (Chart III). She has hazel eyes and almost a white skin. He is the son of a Scot and a Cree half-breed woman from James Bay, who had dark-brown eyes (Chart I). The father and 2 sons came to the Temagami district after the mother died, and the sons do not even know their mother's given name. William Moore's eyes are bluish-grey and his skin almost white. Of the 5 children, 3 of whom I was able to examine carefully, Susan has blue-grey eyes with flecks of brown around the pupils, and her skin is white; Patricia (Pl. LII. fig. 3 (left)) has brown eyes shading to yellow and grey at the margin, a nearly white skin, and somewhat Indian features; Martha (Pl. LII. fig. 3 (right)) has similar eyes and a white skin; Amy is a young child whose eyes are reported to be changing from vivid blue to darker blue-grey, and her skin is white; Margaret, the baby, has brown eyes and white skin. The hair of all is medium, except that of Patricia, which is very dark brown. In this case both parents are nearly white, with a small amount of pigment in the eyes, and the children show segregation both in eye colour and skin colour, as well as in features.

Next in the Petrant family is Dan (Chart III. I. 8), who ran the motor-boat, and had blue eyes, but with a few flecks of yellow pigment and a considerable degree of pigmentation in his skin. He married Lizzie Grandlouis, who, like her sister Maggie, wife of Larrie Turner (Chart I. V. 2), was brought up by foster-parents and belonged to the Red River Indians. They have dark skin and blue eyes, and the two boys have brown eyes and a dark skin like their mother. Dan's sister Delphine, who has hazel eyes and a light skin with no Indian tint, married a white man, and their baby boy has a white skin and eyes like its mother. From these and other cases already cited, it is clear that segregation of a pure white skin can occur from Indian half-breeds.

GENETIC RESULTS OF CROSSING.

The deficiencies in these records, despite the trouble taken in collecting them, made one hesitate to publish them. Nevertheless they do show certain things, including the pedigree method one must adopt in all studies of racial inheritance, if definite genetic results are to be obtained. They suggest that two or more factors for skin colour are present in the North-American Indian, as in the negro, and that one of these affects eye colour as well, though the other does not. A very dark skin is accompanied by intensely black eyes, but if the skin colour of the half-breeds is much paler, owing to the absence of certain factors, then the eyes may be blue, or nearly so.

One is led to conclude that at least two factors, if not more, are necessary to produce the intensely "black" eye of the Indian. Owing to the correlation between eye colour and skin colour, it seems a reasonable hypothesis that certain factors for skin pigmentation affect also the eye colour, *i.e.* produce brown pigment in the eye, while others do not.

Definite evidence of widely different intensities of pigmentation in various Indian tribes already exists. For example, Matthews [1877] states that the Mandan Indians on the Missouri were very fair, and quotes the statement of Catlin that "after a thorough ablution the skin of some of them appears almost white." Old members of the tribe stated that the Minnetarees who first came among them were still fairer. Catlin [1926, vol. i, p. 105], writing of the Mandans while among them about 1835, says that many have complexions as light as half-breeds "and amongst the women particularly there are many whose skins are almost white, with the most pleasing symmetry and proportion of features: with hazel, with grey, and with blue eyes," and various hair colours, but not red or auburn. Colonel Reynolds ("Report Explor. of Yellowstone, 1859") is quoted to the effect that "the Crows are fairer than the Sioux, many of the mountain band being sallow and hardly a shade darker than the whites who undergo similar exposure. This fact was so marked that the first seen were supposed to be half-breeds, but we were assured that they were of pure Indian descent." Quite probably such peoples had a single

factor for skin colour. The bow and arrow was still in use by these peoples, who had had relatively little contact with whites.

It is reasonable to suppose that the Indians in this region of the Upper Missouri derived their half-white skins and light eyes from a loss mutation similar in some respects to that which gave rise to the "white Indians" of Darien; the latter are, however, albinos. The first white men had only visited them thirty-three years previously, and there had been very little subsequent contact.

That the Mandan people were in a period of variation is further shown by the observation of Catlin [*l.c.*, p. 106] and others that about 1 in 10 or 12 of this tribe had a peculiar form of grey hair: those who possessed it had bright silvery grey hair from infancy, sometimes almost perfectly white. Other Indians, it is said, do not become grey, even in extreme old age (but see Pl. LIII, fig. 3). The Mandans wore their hair very long, often falling to the knees, and the silver hair was "as coarse and harsh as a horse's mane," while hair of other colours was "generally as fine and as soft as silk." This was "unquestionably a hereditary character which runs in families and indicates no inequality in disposition or intellect."

Remarking on this subject, Matthews says [p. 44]: "There is no reason why marked varieties of colour should not arise in the Red Race as it has done in other races of men, and as it has so often done, under cultivation, within specific limits in the lower animals.¹ I have seen full-blooded Indians who were whiter than some half-breeds and whiter than the darkest representatives of the Aryan Race. An increase of hairiness is a more reliable sign of Caucasian blood in an Indian than a diminution of colour in the skin; and I never could discover that those fair Indians, claiming pure blood, were more hairy than others. The fairness of which I speak is not albinism, for the eyesight of the fair Indians is as perfect as that of the dark: they have no unusual appearance of the pupil, and exposure to sunlight darkens their skins. I have never seen an albino Indian."

It is at least safe to conclude that some Indians had more factors or genes for skin colour than others, and that certain tribes, especially the Mandans and Crows, differed notably from others in this respect. If the lightest had a single factor, the darkest would probably have at least three. Moreover, these factors may differ in the intensity of their effect on the pigmentation.

Crossing of races and genetical segregation thus appear to have played exactly the same part in man that they have among animal species.

Other features of interest in this study are the great variety of proportions of white and Indian blood in the various crosses and the large amount of intermarriage which has taken place. These points could only be brought out by making the pedigrees as complete as possible. In general, it appears that where the parents are similar in eye and skin colour and are not carrying many of the factors which are epistatic

¹ This statement is entirely in harmony with the modern genetic point of view.

to white skin and blue eyes, the children will resemble their parents, but may depart from them in certain points. If both parents have very dark skin, no matter what their descent, the recessive blue eyes and white skin will not get a chance to appear in their offspring. This may be because, as I have suggested, certain of these factors also produce pigment in the eyes. A third alternative would be that when a certain number of factors for skin pigmentation were present the pigment would tend to overflow, so to speak, into the eyes. It is certain that in the white races eye colour is not independent of skin pigmentation. It is well known that there is a high correlation between skin complexion and eye colour. That a medium dark skin may be associated with essentially blue eyes is one of the interesting results from these Indian-white half-breeds.

It further appears from the pedigrees that eye and skin colour normally correspond in depth, *i.e.* a lighter or darker member of a family will show the difference in both skin and eyes. This might be explained by my third suggestion above, or in more orthodox fashion by linkage between certain factors for eye colour and skin colour. As pointed out earlier (p. 517), the anthropometric studies of Sullivan have shown that segregation also clearly occurs in these size and shape characters in inter-racial crosses—a fact of much significance.

RACIAL FUSION.

Finally, one must consider the general value of these half-breed Ojibway and Cree strains in comparison with the pure Indian tribes or the whites. Elsewhere [Gates, 1923] I have expressed the view that miscegenation in general is to be deprecated when occurring between an advanced and a much more backward race. Nevertheless, it was considered that each inter-racial cross must be investigated for itself, and that the results might be quite different from one such cross to another. For example, one would be justified in assuming that a cross between negroes and Eskimo would be undesirable from any point of view, since they are adapted to wholly different conditions of life. But a cross between some Polynesians and whites would be free from some of these disadvantages. There is no doubt that inter-racial crossing has been going on throughout historical time, and is now occurring on a larger scale than ever before. It has probably occurred with varying frequency throughout the evolution of mankind. Nevertheless, the fact that the earth's great land masses are mainly occupied by distinct colour varieties of mankind, despite the innumerable variations within each, shows that isolation must have played a part of fundamental importance in their evolution.

Miscegenation should therefore only be viewed in the light of its results with any particular pair of races. As mentioned also in the last paragraph, there is, too, the important question of adaptation to the conditions. The Indian half-breeds of Northern Ontario are a hardy race of hunters and trappers and woodsmen, well

adapted to the wild pioneering conditions under which they live: they appear to have the hardiness of the native Indians combined with greater initiative and enterprise than the pure Indian would ever show. Many of those with which I came into contact led one to a feeling of respect for their personal qualities. They push the fringe of civilization farther north than it would otherwise extend, and help to people a territory which would otherwise be nearly empty. They have adopted some of the Indian's productions and devices, such as moccasins, snowshoes and papoose cradles: but they at the same time attain a condition of living which the Indian alone could not reach, so they may be said to justify themselves abundantly by their works. The fact that families of almost every intergrade between pure Indians and pure whites occur together in the same district, although the great majority are clearly intermediate between the two races, does not vitiate the arguments I have used. Rather, it serves to show that an intermediate race may be more progressively adapted to the particular conditions than either of the races from which it sprang.

These records also have an important bearing on questions of racial fusion. In the migrations of man one race has frequently driven another before it into new territory, but a greater or smaller proportion of the population, or, in many cases, the whole surviving population of the conquered race, is left behind, where it is gradually merged with the conquerors who may be far less numerous. Such amalgamations appear to have been taking place at frequent intervals throughout human history. The result is not strictly a blend, as so often stated. Although this term may ultimately be applied to the population as a whole, there is no reasonable doubt that the numerous original differences between the two racial types remain as inherited units, which are recombined in every possible way to give a highly variable population, in which gradually certain types come to predominate through sexual selection, natural selection, differential birth-rates, and other conditions. The hybrid population of Northern Brazil is of such origin. Having already probably passed through its greatest variability, it is now entering upon a stage of greater uniformity, in which the bulk of the people show certain combinations of physical and mental characteristics originally derived from the constituent races. These races have thus amalgamated, accompanied by selective processes, in such a way that the qualities of the new race could be partly, but not wholly, predicted by knowing those of the original parent races.

Thus the scientific study of racial crossing may in future throw much light upon the origin of many races of mankind. This phase of human evolution may be expected to be more amenable to analysis than the other, in which new variations appear and produce new races.

APPENDIX.

The great difficulty of getting absolutely reliable information with regard to ancestors more than three or four generations back has already been emphasized. Since these pedigrees were made up, the discovery has been made by Mrs. Weir that Valentine Sandis was not pure French, but that his father was Scotch, the name probably being originally Saunders, and his mother named Sabrai, the daughter of a Frenchman, Sabrai or Sabreur, and a half-breed woman to whom he was not married. This is confirmed by the photograph (Pl. LIII. fig. 2) of a family portrait of Valentine Sandis showing evident Indian traits. This pedigree is shown in Chart VI. which replaces the first two lines of Chart I. This, of course, alters the fractions of Indian blood given in the paper, which were based on the assumption that Valentine Sandis was of pure blood. It shows that, even in this region, crossing began so early that it is impossible to get back to the beginning. It was thought better, however, to leave these fractions as they stand, because they show at any rate, the relative amount of Indian blood, although not the absolute amount. In each case the real fraction should be a little more.

Probably the blood-group test is the best test that we have of purity of Indian descent in addition to the study of the ordinary features. But even this is not an absolute test, for some white individuals also belong to Group I. Nevertheless, Indian features combined with Group I blood-test would make the conclusion of pure blood highly probable.

It may be pointed out, however, that notwithstanding all the difficulties of uncertain ancestry and doubtful parentage, certain conclusions can still be drawn. For example, certain factors for eye colour are shown to be independent of certain factors for skin colour, no matter what the parentage; also, all cases of segregation within a family of sibs from the same parents are significant, even if the exact proportion of Indian blood is unknown. The evidence is strong that in the inheritance of human skin colour, eye colour, skull shape, and other features, multiple factors are involved. This being the case, it means that in the pure Indian race a larger number of such factors would be present than will appear in any Indian of mixed blood.

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FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.

FIG. 1.—MALCOLM MCLEAN, SCOT FROM HEBRIDES.

FIG. 2.—JOHN TURNER, SR. (WHITE), AND HIS WIFE MARY MCLEAN ($\frac{1}{5}$ -INDIAN).

FIG. 3.—MRS. TURNER ($\frac{1}{8}$), BETSY SANDIS HER AUNT ($\frac{1}{4}$), AND MR. TURNER (SEE CHART 1).

FIG. 4.—JOHN TURNER, JR. ($\frac{11}{32}$), MAGGIE QUILL (CREE HALF-BREED), AND THEIR FAMILY (CHART 1).



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.



FIG. 5.

- FIG. 1.—BETSY SANDIS (RIGHT) (CHART I. II, 3), AND HER DAUGHTER-IN-LAW LUCY WHITEBEAR (CHART V. II, 1) (PURE OJIBWAY INDIAN) HOLDING HER BABY.
 FIG. 2.—JANE TURNER (BLACK EYES, DARK SKIN), AND THE BABY KATE (BLACK EYES AND HAIR, DARK SKIN) IN INDIAN CRADLE.
 FIG. 3.—CECILE WHITEBEAR (SISTER OF LUCY), WITH BABY.
 FIG. 4.—CATHERINE (MOSSABIE) WHITEBEAR (CHART V. II, 3) (PURE OJIBWAY INDIAN), HER MOTHER, AND SOME INDIAN CHILDREN.
 FIG. 5.—WILL TURNER, BROTHER TO BESSIE TURNER.



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.

FIG. 1.—WILLIAM PETRANT, SR. ($\frac{1}{4}$), MAGGIE MCLEAN ($\frac{1}{2}$) (CHART I. III, 3), AND THREE CHILDREN (FROM AN OLD PHOTOGRAPH).

FIG. 2.—ANGEL WABI, HER SON GORDON, AND GEORGE TURNER.

FIG. 3.—EMMA TURNER ($\frac{1}{16}$), SISTER TO GEORGE TURNER.

FIG. 4.—BESSIE TURNER ($\frac{1}{12}$) (CHART I. V, 4), SISTER TO JOHN TURNER, JR. (PL. XLIX, FIG. 4).



FIG. 1.



FIG. 3.



FIG. 2.



FIG. 4.

- FIG. 1. RICHESIO WABIGISHIK (MRS. KATT) (RIGHT) (CHART IV. 1, 1) AND DAUGHTER-IN-LAW JANE ALBANY (HALE-BREED) WITH BABY.
 FIG. 2. PRESQUE, DAN, AND JAMES PETKANT ($\frac{1}{16}$). BROTHERS (CHART III) (SEE TEXT)
 FIG. 3. PATRICIA (LEFT) (CHART III. II, 12), AND MARTHA MOORE (SEE TEXT).
 FIG. 4. "INDIAN" OF UNKNOWN ANCESTRY STANDING AGAINST THE HUDSON'S BAY COMPANY'S STORE, IN HIS HAND A TIN OF CONDENSED MILK.



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.

FIG. 1.—WILLIAM PETRANT, SR. LATER PHOTOGRAPH: *cf.* PL. LI, FIG. 11.

FIG. 2.—PORTRAIT OF VALENTINI SANDIS.

FIG. 3.—DAN MISSABIE, 1921. PHOTOGRAPH UNFORTUNATELY RETOUCHEE (A "PUPIL" INSERTED IN LEFT EYE), BUT SHOWS WHITE HAIR AND FEATURES WHICH ARE DOUBTFULLY PURE INDIAN.

FIG. 4.—A GROUP CONTAINING—

- (1) MAGGIE SANDIS (CHART I, II, 2), WHO MARRIED JOHN FRIDAY.
- (2) WM. FRIDAY (III, 5), AND HIS WIFE SOPHIA POTTS.
- (3) JOSEPH FRIDAY (III, 6) AND HIS WIFE (WHITE).
- (4) JAMES FRIDAY (III, 4).
- (5) GEORGE FRIDAY (III, 8).

ASYMMETRY IN DESCENT, WITH SPECIAL REFERENCE TO PENTECOST.

By BRENDA Z. SELIGMAN.

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INTRODUCTION.

My object in analysing the kinship terms of Pentecost, which led to the preparation of this paper, was to ascertain whether any light could be thrown on this complicated system by comparison with the Ambrym six-class system.* The hypothesis formed while working at the Ambrym class system, that these groups arose as the result of the acceptance of bilateral descent, led me to suppose that this principle might apply not only to Australia, where the marriage classes are definite, but to other regions where the injunctions and prohibitions connected with marriage could not be explained simply on the grounds of clan exogamy.

The result of this analysis, though not exactly what I had anticipated, strengthened the opinion I have been forming that our ideas concerning descent need revision. By means of an accepted principle of descent everyone obtains birthright membership of a certain social group. Such a social group has many

* A. Bernard Deacon, "The Regulation of Marriage in Ambrym," *J.R.A.I.*, vol. lvii, July-December, 1927.

functions, but the only aspect with which we are concerned here is the regulation of marriage. The social group with which we propose to deal is exogamous.

Consanguinity is frequently recognized as a bar to marriage, but it must be noted that this regulation is not identical with the recognition of the bilateral principle of descent. The latter prohibits marriage within the group of either parent, and is therefore not dependent on traceable relationship: if consanguinity is the basis on which marriage is regulated (where there is clan organization), marriage into the clans of both parents may sometimes be prohibited, or the clan of that parent only from whom descent is reckoned may be prohibited as well as those persons in the clan of the other parent to whom relationship can be traced. This condition does not result in a definite number of intermarrying groups, because there may be an indefinite number of clans into any of which marriage is allowed. Both types of prohibition occur in Africa, where, though consanguinity is a bar to marriage, the unilateral method of tracing descent is legal, and the unilateral unit, the clan, remains the main feature of social organization. Where there is a preference for marriage with a certain relative, or a custom compelling such marriage, certain clans may become grouped together, but unless marriages with unrelated persons (in the classificatory sense) are also *forbidden* definite marriage classes would not occur.* Thus, there is a tendency for certain clans to be associated in couples in Ashanti, and a preference for the cross-cousin marriage, but this differs from a dual organization or a class system, because marriages into other clans with unrelated persons are also permissible and take place frequently.

Although it may appear that the type of marriage is the dominant factor in the formation of the social groups, the point that I want to bring forward is that it is the *recognized form of legal descent* that really shapes both the groupings and the marriages, and that with certain groupings only certain marriages are possible, one of which may in time come to be regarded as the orthodox marriage in the given society.† The importance of this point of view lies in the fact that the mode of reckoning descent must react upon the prevalent idea of incest which marks the boundaries of a social group, either widening or narrowing its meaning, and that the prohibition of incest rests upon a deep emotional basis with a religious sanction. Thus the mode of tracing descent is of more fundamental social importance than the form of marriage. The former must, in the first instance, regulate the latter; it is not, however, the only factor in the regulation of marriage. Once the legal mode of descent is adopted and the conventional attitude towards incest that

* Marriage classes have not been described in Africa; this would not be evidence that they do not exist on that continent, but there seems to be no reason to suspect their existence. A form of bilateral descent has been described for the Rabai, but it is not stated what form of marriage is associated with it. (See A. Werner, *Hastings' Encyclopædia of Religion and Ethics*, art. "Nyika.")

† Since writing the above, I have seen that Professor T. T. Barnard criticizes Rivers' method in a similar way, though he does not lay the emphasis on descent (*Man*, August, 1928).

it engenders accepted, economic or other social factors may favour any particular marriage that does not fall within the forbidden degree.

The conclusions that I have come to from the examination of the Pentecost system recorded by Rivers seem important, as possibly leading to a reconsideration of current views concerning descent, incest, and anomalous marriages, and eventually on the classificatory system and its relation to the dual organization.

SYSTEMS OF TRACING DESCENT.

I propose to consider descent not only as matrilineal or patrilineal, but as organized on three main systems: each of these is subdivided, and seven varieties of descent can be recognized in savage society. Regulation of marriage will be seen to be dependent upon the form of descent adopted in each society, and the meaning of incest correlated with the idea of descent.

(1) *The Unilateral System* is the well-known system by which affiliation to one side of the family only is recognized as legal. This can be either matrilineal or patrilineal. This system is typical of clan organization.*

(2) *The Bilateral System* of descent recognizes both lines. The family is a bilateral institution, but the system is inconvenient, except for the small family group (the group composed of husband, wife and children). Should larger groups be organized on this system without the dominance of either the matrilineal or patrilineal line, the resulting unit is a *kindred*† whose boundaries must be fluid and regulated more by circumstances than custom. Thus a strong personality (or the memory of one) may hold a kindred together for several generations, but the kindred can never have the definite continuity found in the unilateral clan. In an exogamous kindred group, such as the *taviti* of Eddystone, marriage is not allowed with anyone with whom relationship can be traced on either side of the family. Thus, descent may be said to be traced bilaterally and equally. Bilateral descent of this kind implies the constant breaking up and reforming of social groups, because, though it is possible potentially to belong to several groups, yet for the purposes of exogamy one cannot belong to the eight different groups of the great-grandparents (which imply the sixteen groups of the previous generation) without implying tribal (not group) exogamy, and such a condition is entirely unknown. Bilateral descent may occur with the dominance of either the matrilineal or the patrilineal principle: in either event the groups are limited to one generation only, and an alternation of generation is apparent. Classes with indirect descent due to this method of tracing descent are found in Australia and in Ambrym.‡

* Lowie, *Primitive Society* (1920).

† "For the bilateral group, I propose to use the term *kindred*. When I speak of a kindred, I shall mean a group consisting of persons related to one another, other than by marriage, through both father and mother." Rivers, *Social Organization* (Kegan Paul, 1924), p. 16.

‡ B. Z. Seligman, "Bilateral Descent and the Formation of Marriage Classes," *J.R.A.I.*, vol. lvii, July-December, 1927.

(3) *Asymmetrical Descent*.—Descent may be said to be asymmetrical when one form works in a submerged manner while the dominant form only is responsible for clan organization (or any other form of grouping). In this form of descent the dominant form is recognized by both sexes, but as I shall indicate later the submerged form is recognized by one sex only. Thus, with dominantly matrilineal descent, men and women both recognize matrilineal descent, but men also recognize patrilineal descent while women do not. Again, with dominantly patrilineal descent both men and women recognize patrilineal descent, while women also recognize matrilineal descent and men do not. It is the object of this paper to show that the asymmetrical form of descent is responsible for the social organization of Pentecost as recorded by Rivers, and it is suggested that it may also account for the tri-clan system of Assam.

Field-workers have expressed the opinion that Rivers' scheme of historical stratification in Melanesia would need revision.* My rendering of his account of the Pentecost system endorses this view, but raises the questions of more fundamental sociological importance mentioned above.

Rivers supposed that there was a definite functional correlation between the systems of Melanesia and of Australia and gerontocracy—the dominance of old men, with wide marital rights over the young women of certain groups—and he supposed this type of social organization to be relatively early, *i.e.* associated with the dual people before they were influenced by the migration of the betel and kava peoples. According to my view, all systems are regulated by the form of descent that is recognized as legal, and gerontocracy *can* become important in any scheme within the limits produced by the form of descent if other conditions are favourable to it. When I examined gerontocracy in Africa I found no evidence for this being an early or fundamental social form in that continent, but rather that its occurrence was due to culture contact of a kind that could not be considered as especially early.

These opposing views are worthy of consideration both from the sociological and the psychological point of view, and are of more than mere academic interest. In *The History of Melanesian Society*, a condition is assumed to have been in existence in the past, and to have left its mark on present savage society, in which the family was of little or no importance, but society was organized on a dual clan basis, the elder men of one section having marital rights over the younger women of the other. This condition was supposed to account for the main features of Melanesian and Australian society. (In the Melanesian systems marriage with the mother's brother's widow is possible, in the Australian systems it is not.) Rivers did not suggest that this gerontocratic dual organization was the only, or even the earliest, human form of social organization, but one that had been dominant in shaping society probably throughout the world—at least, in all peoples who have used the classificatory system. According to my view, the features under consideration—

* Deacon, *op. cit.* Barnard, *Man*, August, 1928, p. 103.

marriage classes, gerontocracy, and preferential mating—can all be understood without this assumption, by regarding the family as a bilateral and the clan as a unilateral institution, the two forms working in conjunction in the organization of society, both in the past and in the present.* Thus, instead of regarding marriage classes as vestiges of a bygone age, when exogamy was the only check on gerontocracy, they may be looked upon as due to the influence of descent on the two great social institutions—the family and the clan.†

From the psychological point of view the advantage of this attitude is great. All recent psychological investigation has tended to lay emphasis on the vast importance throughout life of the first few years of childhood and of the child's reactions within the small family group: not only are the foundations of character laid, but it would appear that the social and religious ideals may be formed emotionally at a tender age and put into quasi-rational form later.

From the biological point of view, of the survival of the fittest, there can be no more important factor than the protection of the immature, and it would seem obvious that the young can be better fed and protected in a family group than in some larger exogamous gerontocratic group. So that, if certain features of savage society can be understood without the assumption of conditions which appear in themselves dysgenic (the habitual mating of old men to young women, and the lack of provision of a family life in which the young are assured of sustenance and protection), then social anthropology will seem to stand on firmer ground.‡ Thus the somewhat aberrant systems of Ambrym and Pentecost are worthy of consideration, not only in order to understand their own function and value, but as throwing light on other systems usually considered more typical.

In examining the kinship terms for Pentecost Island given by Rivers in his *History of Melanesian Society*, and comparing the system with those of Ambrym, I hoped some of its complexities might be elucidated. I found that in Pentecost as well as in Ambrym the method of tracing descent divides the community into groups and regulates the habitual marriages. But in Pentecost the resultant grouping is not the only force which regulates marriage: the ordinary family rules of incest hold, as they do in all classificatory systems where marriage between parent and child is not allowed, although, with matrilineal descent, father and daughter, and, with patrilineal descent, mother and son marriages are not prohibited by the law of clan exogamy. Further, the widespread rule that a man may not marry a girl and her mother, together with the usual type of behaviour that accompanies this almost universal regulation, is observed. In N. Pentecost these two forces, though

* See Malinowski, *Sex and Repression in Savage Society* (1927); also Lowie, *op. cit.*

† According to Durkheim, the class system of the Aruuta is due to a change in the method of reckoning descent from a matrilineal to a patrilineal system, not, as it is here regarded, as due to both forms working in conjunction with patrilineal dominance. Thus the difference in this particular aspect of class formation is slight. (See *L'Année Sociologique*, vol. v, p. 106.)

‡ See also Malinowski, *op. cit.*

at work in the regulation of marriage, do not affect the grouping, which depends entirely on descent. Thus, the fact that a woman, her mother, and her daughter all fall into one group, owing to the type of descent, does not imply to the native that they can all be married. If one of these women is the habitual mate, it is clear that neither her daughter nor her mother can be also. In Australia and Ambrym, on the other hand, a woman and her daughter fall into different groups. In Pentecost there is a dual organization, so that all marriages which take place in the area are necessarily between persons related in some manner, but the mode of tracing descent further divides society into six groups. It is only possible to marry into one of the six groups, yet within the marriageable group there are women who cannot be regarded as mates for reasons which would be familiar to everyone. The peculiar feature of the Pentecost system, as shown from Rivers' records, is that the exchange of sisters for wives, so prevalent in Australia and characteristic of the Ambrym system, is *not* allowed. This regulation marks a distinction between the Australian and Ambrym systems on the one hand and those of Pentecost and Assam on the other, while the relationship of both types to the dual organization with cross-cousin marriage is evident.

The relationship terms that Mr. Deacon recorded at Batnapni* on Pentecost are so different from those given by Rivers that comparison between them is not possible: not only are the terms unlike, but they seem to be used differently. The list is not sufficiently complete to indicate whether there is any arrangement into groups. Mr. Deacon stated, however, that the two moieties at Batnapni, Tavi and Bulé correspond to those of Malau and Tagaro, respectively. There seems little doubt that he was right in considering that the evidence he has collected from Ambrym would throw fresh light on Melanesian social problems.

THE RELATIONSHIP SYSTEM OF PENTECOST AS DEDUCED FROM THE DATA IN
"THE HISTORY OF MELANESIAN SOCIETY."

The Verana Grouping.

In spite of the lack of new material, I turned to chap. viii, vol. i, of *The History of Melanesian Society*, and re-read Rivers' account of Pentecost to see whether the meaning of *verana* grouping could be elucidated by comparison with the grouping on Ambrym. Rivers says: "The social structure is that of the dual organization with matrilineal descent. The two exogamous moieties are called Tagaro and Malau . . . There are also groups called *verana*, the exact nature of which I failed to discover."† In the pedigree given on p. 191, Rivers notes four persons whom his informant John was unable to marry because they belonged to John's *verana*,

* Dr. Haddon kindly showed me Deacon's unpublished notes.

† *Op. cit.*, vol. i p. 189.

though not to his own moiety. In the diagrammatic pedigree (Fig. 1). I have replaced the names by the Ranon (Ambrym) class lettering.* It will be seen that Mercy, Vuivira, Muriel and her daughter all belong to classes that are unmarriageable at Ranon (E marries *d*), but they do not belong to the same *batatun*. So that the *verana* cannot be equated with the *batatun*, a moiety with matrilineal descent. It is clear that *verana* cannot mean generation (*i.e.* "line" in Deacon's notes), either in the patrilineal sense, because *b* and *d* both belong to the same *verana*, or in the matrilineal sense, because A and *d* belong to the same *verana*.* I was unable to find any scheme which would divide the social organization into two sections, A, D, B belonging to one section and C, E, F to the other. The only conclusion that could be reached was that marriages forbidden on Ambrym were also forbidden on Pentecost, but there seemed to be no rule by which these could be regulated. I then turned to Rivers' statement that "each moiety had three subdivisions, which we may call A, B and C in one moiety, and D, E and F in the other. It was said that a man of A had to marry a woman of D, a man of B a woman of E, and a

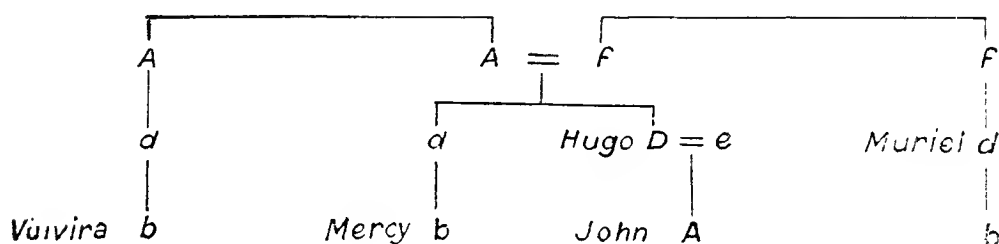


FIG. 1 — PEDIGREE TAKEN FROM RIVERS' "HISTORY OF MELANESIAN SOCIETY," VOL. I, PAGE 190, WITH THE LETTERING OF THE AMBRYM GROUPING

man of C a woman of F: while men of D, E and F divisions could not marry women of A, B and C, respectively, but a man of the F division must marry a woman of A, and so on."† Rivers was unable to verify this statement, and so apparently paid no heed to it.‡ Fig. 2 is the same pedigree in diagrammatic form, using the lettering given above, and the information that descent is matrilineal. It will be seen at a glance that all those women whom John

* Deacon, *op. cit.*

† *Op. cit.*, vol. i, p. 190.

‡ *Op. cit.*, vol. ii, p. 75: "It was said that each moiety had three subdivisions (it was uncertain how far these subgroups correspond with the *verana* described by other informants), and while a man of one group, which we may call A, had to marry a woman of a group of the other moiety we may call D, a man of D did not marry a woman of A, who would become the wife of a man of another division of the first moiety I can now only suggest that the information was based on a misunderstanding of a mechanism for the regulation of marriage within the moieties which may even resemble in some measure the matrimonial classes of Australia. At any rate, the resemblance with these classes is sufficiently close to make it extremely unlikely that John Pantutun could have invented or imagined such a system."

may not marry belong to the same group as John's father—therefore, the *verana* is a grouping formed by patrilineal descent, and a man and his father belong to the same *verana* grouping (Figs. 2 and 4). This grouping corresponds in a certain measure to *buelim* in Ambrym, but not entirely so, because the *verana* groupings can only include two generations in the direct male line, whereas the *buelim* group continues directly in the male line. Moreover, there is another important distinction—the *verana* relates a man to his father's sister and *her children*, who, by means of the acknowledged matrilineal descent, belong to the group of their mother. The *verana* is a curious compromise formation-group which links a man (who ostensibly belongs to the group of his mother and her brother) to the group of his father and his father's sister's children and their descendants in the female line. If this meaning of *verana* is correct, it will be seen that it is not a stable group, but a grouping relative to one person only. Thus, although two persons may be said to belong to the same *verana*, for each of them the *verana* will be composed of different persons. Thus, for John, a member of group A, the members of group F (his father's group) are his *verana*. As descent is matrilineal, these will include, besides his father, his father's mother, and his father's mother's sister and her descendants in the female line, as well as his father's sisters and her descendants in the female line. But for John's father, Hugo, the members of group C are his *verana*. So that although there is a *verana* relationship between John and Hugo, there is another *verana* relationship between Hugo and his father Timothy, and none at all between Timothy and John. Thus a structural difference is seen from the bilateral groupings of Australia and Ambrym, where alternate generations are grouped together.

The Six Groupings or Classes.

From this explanation of *verana* we see that a man must marry into the opposite moiety, but he cannot marry into that grouping of the moiety to which his father belongs (his *verana*), nor may a couple of a brother and a sister marry a couple of a sister and a brother. But even these prohibitions give no reason why A (a Tagaro man) may not marry into the E group of Malau. In order to throw light on this problem, I tried to consider what would happen with matrilineal descent and exogamy when a brother and a sister might not marry a sister and a brother, but there was otherwise no prohibition against the marriage of cousins. It became clear that if X married *y*, but Y could not marry *x*, three groups must form automatically: *x* will marry Z and his sister will marry Y. If marriage with the mother's brother's daughter is allowed, the prohibition for a brother and a sister to marry a sister and a brother also prevents a man from marrying his father's sister's daughter. Thus X¹ marries *y*¹ (his mother's brother's daughter), and his sister *x*¹ marries her father's sister's son Z¹, who also makes the correct marriage, but another brother of X, X², cannot marry his father's sister's daughter *z*¹, because then a brother and a sister would marry a sister and a brother—he must marry his mother's brother's daughter ;

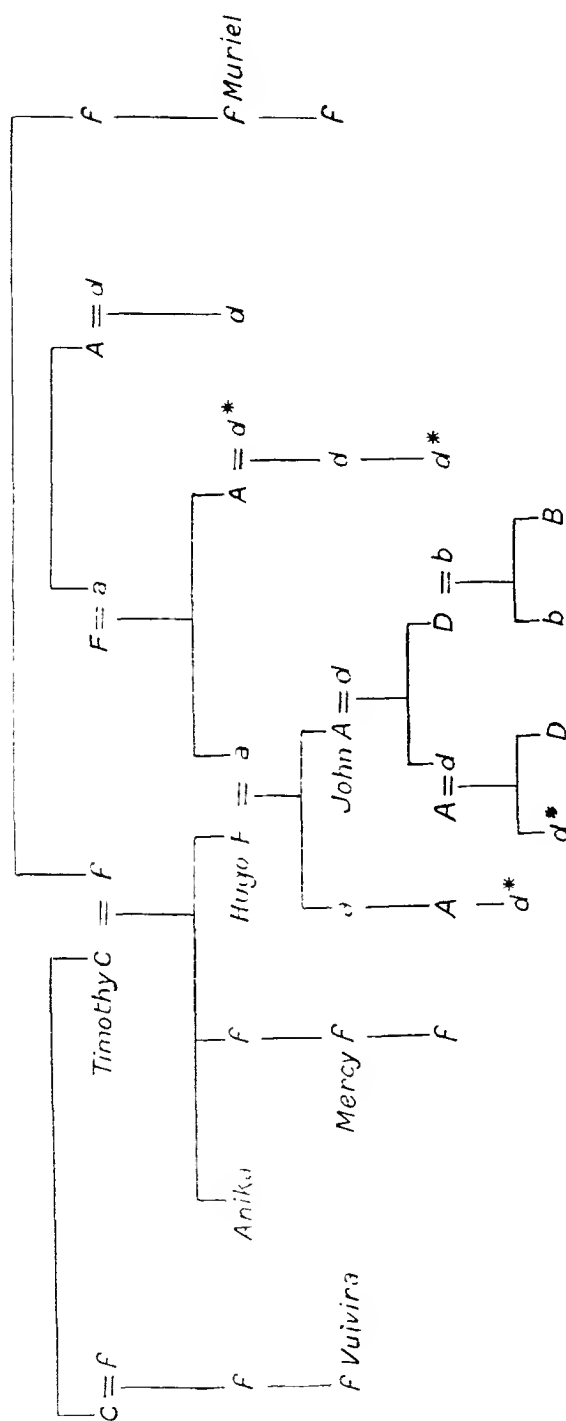


FIG. 2 - PEDIGREE TAKEN FROM RIVERS' "HISTORY OF MELANESIAN SOCIETY," VOL. I, PAGE 190, WITH THE LETTERING OF SIX PENTECOST GROUPS ADDED. IT SHOWS THAT THE WOMEN MENTIONED BY RIVERS AS BELONGING TO JOHN'S *ccand*, WHOM HE COULD NOT MARRY, ALL ALSO BELONG TO THE GROUP OF JOHN'S FATHER.

* Members of group *d* whom John can marry.

two brothers may, however, marry two sisters. To return to Pentecost, we know that there is a dual organization there, and matrilineal descent, and we are told that a brother and a sister cannot marry a sister and a brother; hence, the population will fall into six groupings instead of the three necessary to this prohibition, and a man of one grouping can only marry a woman of one grouping of the opposite moiety.

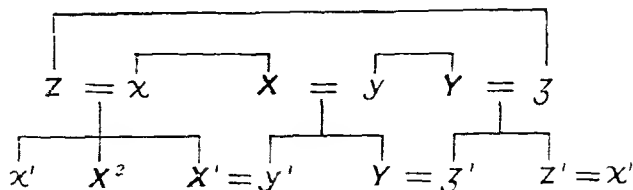


FIG. 3.—ASYMMETRY WITH MATRILINEAL DOMINANCE.

MATRILINEAL DESCENT AND PROHIBITION FOR BROTHER AND SISTER TO MARRY SISTER AND BROTHER: MARRIAGE WITH MOTHER'S BROTHER'S DAUGHTER ALLOWED, THEREFORE MARRIAGE WITH FATHER'S SISTER'S DAUGHTER NOT POSSIBLE. A WOMAN MARRIES INTO THE GROUP OF HER FATHER. A MAN INTO A GROUP TO WHICH NEITHER PARENT BELONGS.

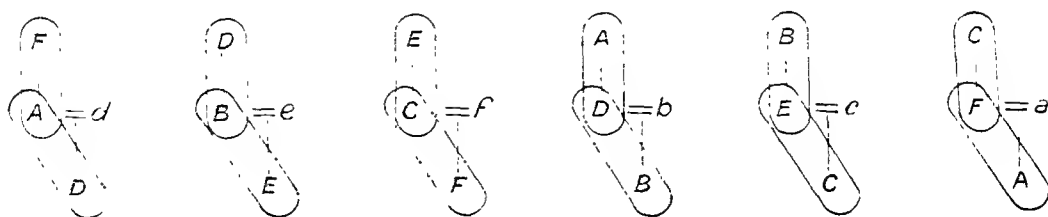


FIG. 4.—DIAGRAM SHOWING THE MARRIAGES OF THE MEN OF THE MOIETY A, B, C WITH THE WOMEN *d, e, f*, AND OF THE MEN OF MOIETY D, E, F WITH THE WOMEN *b, c, a*, AND THE *verana* RELATIONSHIP BETWEEN FATHER AND SON, WHO ARE NECESSARILY OF DIFFERENT MOIETIES.

Prohibition for Brother and Sister to Marry Sister and Brother.

We may now ask, why is there this strange rule, that a brother and a sister may not marry a sister and a brother—a practice common on Ambrym and in other places where the dual organization is found? The answer may be found in the *verana* grouping. In Fig. 2 we saw that John could not marry the women *f* because his father was F, but the women *d* married the men A, although they themselves were the daughters of A and *d*.* So that a man recognizes bilateral descent as a bar to marriage, while a woman only recognizes matrilineal descent. Thus, it will be seen that although *a* marries F, her brother A cannot marry his sister's husband's sister *f*

* Thus women do not stand in the *verana* grouping relationship to their fathers; probably they have no *verana* of their own. In spite of this, they do stand in the *verana* relationship to other men who are related to them in a certain way, *i.e.* to the sons of the men of their own group.

because then A would marry into his own *verana*. Therefore, a brother and sister must not marry a sister and a brother. This prohibition to marry between two pairs of brothers and sisters, and therefore against the exchange of sisters for wives, is an important corollary of asymmetrical descent which will be discussed in greater detail later. Where it is enforced the two types of cross-cousin marriage are impossible—if one type is allowed the other must be forbidden.

The key, then, to the Pentecost system is the recognition of bilateral descent by men and of (unilateral) matrilineal descent by women. By reason of this six



FIG. 5.

2 a marries 1 F, who belongs to the group of her father:

1 F marries 2 a, who does not belong to the group of either of his parents.

groupings are formed. It may now be asked how far can these six groupings be considered as marriage classes? In order to answer this the relationship terms must be examined in detail, but it will be convenient first to see which relatives in group D a man of A can marry. Rivers has stated that he could marry his mother's brother's wife, and he inferred that he could marry his brother's daughter's daughter. Deacon stated that he could marry his mother's brother's daughter's daughter,* and suggested that Rivers mistook this marriage for that with the grand-daughter. I have suggested that he could perhaps also marry the sister's son's daughter† because, though we have no evidence that such a marriage was allowed, it was not debarred by the Ambrym system.

Marriages.

Fig. 2 shows the possible marriages for A in group D. By the generally accepted rule of parent-child incest he cannot marry his own daughter *d*, nor if he marries any other of the women *d* can he marry that woman's daughter or her mother. So if it be accepted that he marries his mother's brother's widow or his mother's brother's daughter's daughter, he cannot marry his mother's brother's daughter (his maternal cross-cousin), though there seems no other objection to this marriage. His possible wives, then, are women who are separated from one another by two

* A. Bernard Deacon, *op. cit.*, p. 325. Here the author states that in Leper's Island, North Pentecost, both the marriages with mother's brother's daughter's daughter and the father's sister's daughter's daughter take place. Among these notes of Deacon's that I have seen, I have not found the second type recorded in a genealogy. If Deacon actually found this marriage practised, then there could not have been the prohibition for a brother and sister to marry a sister and brother, which seems to be one essential part of the scheme in that part of Pentecost described by Rivers.

† B. Z. Seligman, *op. cit.*

generations—a condition similar to that in Ambrym. Among the other relatives of the contemporary generation (*i.e.* the second cousins) marriage with two may be possible because they fall into the same class; these are the father's mother's brother's son's daughter and the mother's mother's brother's daughter's daughter (we have no record as to whether such marriages take place). As in Ambrym, certain grand-children are not expressly excluded from him as wives: it should not, however, be concluded that they are, or have been, habitual mates without further evidence. These are the daughter's daughter or brother's daughter's daughter (as suggested by Rivers) and the sister's son's daughter.

Analysis of Terms.

The following tables have been compiled from Rivers' lists of relationship terms, re-arranging these to show how they fall into the six groups, A, B, C, D, E, F:—

(1) A man of division A speaking:—

<i>Tamuna</i>	..	Father, father's brother, mother's sister's husband, father's sister's son	..	..	..	..	F
<i>Sibina</i>	..	Sister's husband, mother's father	..	..	..	..	F
		Father's mother	..	..	..	..	f
<i>Ratahina</i>	..	Mother, mother's sister, wife of the father's brother, father's sister's son's wife	..	..	..	..	a
		[The father's sister (here is also an alternative term) and father's sister's daughter f]					
<i>Tuana</i>	{	<i>Tuagana</i>	Elder brother, father's brother's son (elder)	..	..	..	A
			Mother's sister's son (elder)	..	..	..
			Mother's mother and her sister	..	..	..	a
		<i>Tihina</i>	Younger brother	..	..	..	A
<i>Hogosina</i>	..	Sister, sister's daughter's daughter	..	..	..	..	a
		[Son's wife	..	..	..	..	b]
<i>Tarabena</i>	..	Mother's brother	}reciprocal	{	..	..	A
<i>Aloana</i>	..	Sister's son		{	..	..	A
<i>Nituna</i>	..	Son and daughter, mother's brother's son and daughter, sister's son's child	..	..	..	..	D d
		Wife's mother, wife's mother's sister	..	..	..	..	d
<i>Mabina</i>	..	Brother's wife, wife's sister, mother's brother's wife, daughter's daughter	..	..	..	..	d
<i>Lalagi</i>	..	Brother's wife, wife's sister, mother's brother's wife, sister's son's wife, sister's son's child	..	..	..	..	d
<i>Biraligana</i>	..	Wife's father, daughter's husband	..	..	..	..	D
<i>Hurina</i>	..	Father's sister's husband	..	..	..	..	C

Terms not given	{	Son's son	B
		Mother's brother's son's wife	b
		Son's son's wife	e
		Son's son's son	E
		Father's father, father's sister's daughter's husband	(

(2) A woman of division *d* speaking, wife of A :

<i>Tamama</i>	Father, father's brother, mother's sister's husband, father's sister's son, daughter's husband sister's daughter's husband .. .
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It will be remembered that Rivers explained the anomalies of the system by the marriage with the mother's brother's wife and the brother's daughter's daughter, but he considered the complexity of the system to have become "as great as human beings are likely to be able to endure."* The point of view I wish to put forward is that the recognition of bilateral descent by men and matrilineal descent only by women (which I have brought forward as the cause of the six-class grouping as well as the *verana* grouping) is also operative in the use of the relationship terms. A glance

* *Op. cit.*, vol. ii, p. 89.

at the list of relationship terms used by a man shows that only in two cases recorded (which I have indicated with square brackets) does he use the same term for people who belong to different classes. It will be remembered that such terms were considered by Deacon's Ambrym informants to be "not straight." I shall use the same expression here—terms that are "not straight" will be considered later. The list is incomplete, and no terms are given for some of the more important members of groups C, B, and E: further, the father's father, a man of group C for A, is left uncertain, for although Rivers was told by one informant that he would be *sibi* (F), the evidence was conflicting, and Rivers seemed doubtful of its correctness.

It will be seen that the anomalies fall into place if considered on a grouping basis. The list of terms used by a woman (I have called the woman *d* wife of A for convenience) is unfortunately less complete than that for a man. But the chief interest lies in those terms which are used differently by a man and a woman.

The daughter's husband and sister's daughter's husband are addressed by the term for father, *tamama*, by a woman but not by a man. For a woman they *do* belong to the same group as the father, for a man they belong to his own group. Unfortunately, these terms are not given for a man.

The wife's mother is addressed by the term for child, *nituna*, by a man; she *does* belong to the same group as his children. But a woman calls her husband's mother *sibina*, who belongs to the same group as her other *sibina*.

A woman calls her sister's daughter's child *tihina*, the term for younger sister (f.s.) : they *both* belong to the same group. This term is not used by a man, whose sister's daughter's child belongs to his group, but is of the opposite sex and so is correctly called *hogosina*.

It will be noticed that the term *lalagi*, used by men and not by women, is an alternative term to *mabina* (m.s.) except in its use for sister's son's child, who is also called *nituna* (m.s.). Rivers considered all the *lalagi* to be potential wives. They all belong to the marriageable group, *d*, for A.

Hogosina is "not straight" for both sexes: the only other term which is "not straight" for a man is *ratahina*, which is used for mother and includes father's sister and father's sister's daughter. These two women belong to the same class, *f*, but not to that of the mother, who is *a*. A woman uses the same term for these two relatives, who are also classed with the mother, and thus for a woman also this term is "not straight.*" I shall return to this later.

In my list I have given mother's brother's child and sister's son's child as *nituna*, because in Rivers' list he did not state that the use of this term for these relatives is limited to males. However, this may be so, as for a man they fall into

* The use of one term for mother and father's sister, though found in many classificatory systems, is not consistent with the formation of the six groups in Pentecost, though the classing of the father's sister's daughter with the father's sister is.

the group of his children, whereas for a woman they do not—they belong to the same group as her *mabina*.

We may now return to the other term that is "not straight"—used by both men and women, since it is reciprocal—is *hogosina*: the husband's father (F for d), son's wife (m.s.) (d for F). Here a man classes his son's wife with his sister, and a woman classes her husband's father with her brother. I can see no possible reason for this.* It should be noted that *hogosina* is a word used by persons of opposite sexes of the same group. This is the only term which cannot be understood on the grouping hypothesis.

Regarded in this light, i.e. the relationship terms tallying with a grouping which the natives understand but which Rivers himself was unable to discover, the difficulty in their use disappears—there is no longer a complexity "as great as human beings are likely to be able to endure" for the people who use the terms. The complexity only exists for the anthropologist, who looks at the system from the outside. It must be noted that the marriages which were deduced by Rivers are not excluded on the grouping principle, but there is no reason to believe that they are enjoined.

The complexity that remains is due to the unusual form of descent which, while it divides the community into six groups, does not separate contiguous or other generations, and though only one group is marriageable, there are many women in that group who cannot be married. Thus, for A, the women of group d include his daughters, *nitana*, and other women grouped with them (who are all equally unmarriageable and include the wife's mother), besides the *lalagi*, whom Rivers considered potential wives, and the apparently alternative term *mabina*. The men of D (A's wife's division) are *buriligana*, wife's father, daughter's husband, but A's own son also belongs to the division of his wife, and those relatives by marriage belonging to the same group as the son are also called *nitana*, "son." The men of A are his elder and younger brothers, and there is a special reciprocal term for mother's brother and sister's son, thus differentiating this sociologically important pair from the other men of his own group. The women of his own group are the elder sisters, the mother's mother and her sisters (*tuagana*), also the sister (*hogosina*).

The mother (*natahana*) also belongs to a man's own group, and with her are classed various other unmarriageable women, including the father's sister and her daughters, who, however, do not belong to her class but to that of the father. This is the term which is "not straight" for both sexes. Both these women belong to the class of the *sibina*, and it is not clear why they should be grouped with the mother rather than the former: it would not have been surprising to find a separate term for them as there is for the mother's brother. It may, however, be presumed that the father's sister is regarded in the light of a classificatory mother, and if there had been a dual organization before patrilineal descent was recognized by men (and

* The possible explanation given by Rivers ignores the fact that a brother and sister cannot marry a sister and a brother. (*Op. cit.*, vol. i, p. 197.)

the six groupings formed thereby), then she may have been the classificatory "mother" at that time. There are two causes that may have been operative in classing the father's sister's daughter with her mother: (1) on the class theory she belongs to the same class: (2) with a dual organization she may have been a customary potential wife. With the recognition of bilateral descent by men she could no longer be regarded as such, and it may have been convenient to address her by the same term as her mother, who on the old organization was a classificatory mother and necessarily unmarriageable. It is curious that Rivers made no comment on the use of the term for "mother" for the father's sister's daughter. He explained the use of the term "father" for the father's sister's son, and "mother" for the father's sister's son's wife, by the marriage of the mother's brother's wife (or widow), but he seemed to have overlooked this other anomaly. It would be a false analogy, of a type that seems to fit very ill with any conceivable idea of kinship patterns, to class the father's sister's daughter with father's sister's son's wife on account of this marriage.

It is unfortunate that the list of terms is not larger so that it could be ascertained whether there are terms which can be used by A for members of all the groups. Such a list would, however, need to be very large, and could probably never be made completely in the field, for it would include some persons with whom contact would be extremely improbable. No man of A group would be likely to come into contact with the members of C group of his own moiety who could trace descent to him or to whom he could trace descent: in like manner, his relationship to members of E group would also be remote. But it must be remembered that he will meet collaterals in those groups. In the direct male line a man comes back to his own group after six generations.

For a man the groups are :—

Own moiety :—

A.	B.	C.
Own group.	Son's wife.	Son's son's son's wife.
Mother's group.	Son's son.	Son's son's son's son.

Opposite moiety :—

D.	E.	F.
Wife's group.	Son's son's wife.	Father's group.
Children's group.	Son's son's son.	

For a woman the groups are :—

Own moiety :—

A.	B.	C.
Own group.	Son's son's wife.	Son's son's son's son's wife.
Mother's group.	Son's son's son.	Son's son's son's son's son.

Opposite moiety :—

D.	E.	F.
Son's wife.	Son's son's son's wife.	The husband's group.
Son's son.	Son's son's son's son	The father's group.

Marriage Classes.

From this analysis of the kinship terms we are in a position to consider whether the Pentecost groupings can be regarded as marriage classes. These groupings have not the apparent disparate character of the Australian classes, but if we may accept the view that the Australian classes as well as those of Ambrym come about by the recognition of certain rules of descent, and the habit of contracting marriages which will conform with the recognized rules, then we find exactly the same principle in action in Pentecost.

Professor Radcliffe-Brown has shown that in the named classes of South-West Australia men are not free to marry any women of the correct named class, but, within the class, marriage is regulated by consanguinity.* The same condition is found in Pentecost—a man must take his bride from a certain group. If this grouping is accepted by the native—and the *cerama* shows that it is—he will have no difficulty in knowing who falls within the marriageable grouping, yet within that "class" certain women will be forbidden to him, both because of the incest laws which operate within the family, and because of the traditional attitude adopted towards the parents of a spouse. Even in Ambrym there is one type of relationship for a man of A2 in the correct marrying group, B2, whom he cannot marry, viz. his father's mother, and she is distinguished from the marriageable women by the relationship terms. Yet no one could deny that the Ambrym unnamed divisions function as marriage classes, because the natives themselves regard them in that way and demonstrated the fact to Mr. Deacon.

The Pentecost groupings do not separate contiguous generations, so that if this feature should be regarded as essential to marriage classes it must then be admitted that it is absent in Pentecost. But it may be asked, what is the functional value in the demarcation of contiguous generations into separate social groups? In any unilateral clan organization, whether matrilineal or patrilineal, a child belongs to the same social group as one of its parents, and social solidarity is in no way impaired by this fact. The behaviour of the child, once it reaches puberty, towards the parent of the opposite sex and of the same social group as itself is regulated by tradition, based on ties formed within the family, not on those associated with any larger social group. In some societies ceremonial avoidance brings into prominence the fact that sexual intercourse between the two is especially abhorrent,

* A. R. Radcliffe-Brown, "Three Tribes of Western Australia," *J.R.A.I.* vol. xlii, p. 143. The author avoids the term "class" and calls these divisions "sections."

while in others the incest barrier is observed without any such obvious precaution. The Ambrym material brought forward the fact that, although the marriage classes may function so as to separate the contiguous generations, the classes themselves result from the recognition of bilateral descent. It is therefore suggested that the separation of contiguous generations is a structural result of the recognition of the bilateral method of tracing descent: but it is not a function of the marriage classes. The parent-child form of incest is inherently strong enough, being reinforced emotionally in every generation, so that the artificial barriers of class, name, or totem are not needed to draw attention to its illegality.

The mode of reckoning descent can be regarded in Pentecost as well as in Ambrym as the force which has divided the community into groups, but the peculiar nature of the descent in Pentecost—bilateral for men and unilateral for women—has prevented the marriage of a brother and a sister with a sister and a brother, and with the daughter of the one type of cross-cousin, and at the same time it has necessarily failed to separate contiguous generations. Also it does divide the community into six groups in this locality. This, however, is not an inevitable result of this form of asymmetrical descent—all that it must do is to form a series of groups of three, which, with matrilineal descent, a man would regard as (1) own group (mother's group): (2) wife's group: (3) father's group: while a woman would regard them differently, thus: (1) own group (mother's group): (2) husband's group and father's group: (3) group of the brother's wife. With patrilineal descent the group would be as follows:—For a man: (1) own group (father's group): (2) wife's group, mother's group: (3) group of sister's husband. For a woman: (1) own group (father's group): (2) mother's group, group of brother's wife: (3) husband's group. There is, however, abundant evidence for a dual organization in the New Hebrides, so that the dual organization can be looked upon as the factor which has determined six groups instead of an indefinite number of associations of triple grouping.

Typical Marriages Associated with the Formation of Groups.

From our knowledge of Australia and Ambrym we should expect a definite type of marriage to be associated with the six groups in Pentecost. Among the possible marriages given above, several women were already the wives of other men, and thus, though probably available as secondary wives, could not be regarded as typical marriages. From Mr. Deacon's notes, we know that the marriage with the mother's brother's daughter's daughter takes place, and this may be regarded as the typical marriage.

ASYMMETRICAL DESCENT IN TANNA.

There is some evidence that points to asymmetrical descent in Tanna, in the Southern New Hebrides. There is no trace of dual organization, and descent is patrilineal. Although marriage is said to be allowed between cross-cousins, there

are two terms for the female cross-cousin: father's sister's daughter, *rahnpetan*, is also the term for wife, while mother's brother's daughter, *newun*, is the term for brother's wife (w.s.). It is not mentioned that one type of cross-cousin is preferred to the other, nor is it hinted that one is forbidden; indeed, Mr. Humphreys* says that cross-cousin marriage is practised, but he adds that the common custom is for female children to be betrothed at birth, and that they are usually given to their mother's brother's sons as wives. There are, therefore, some grounds for supposing that a man now preferably marries his father's sister's daughter, but there are indications that previously he may not have been allowed to marry his mother's brother's daughter. For Mr. Humphreys quotes the Rev. W. Gray† as stating that a man may take no liberties with his sister's husband's sister, but that he (Humphreys) found no trace of avoidance between these two. Ceremonial behaviour between a man and his sister's husband's sisters might be expected where a brother and sister could not marry a sister and brother, which marriage must be prohibited when one type of cross-cousin marriage is allowed and the other forbidden.

The condition found in Tanna may be compared with Assam (*see below*), where there is patrilineal descent: marriage with the father's sister's daughter takes place, but there is a prohibition to marry the mother's brother's daughter and for a brother and a sister to marry a sister and a brother.

MODIFICATION OF RIVERS' SCHEME OF "THE HISTORY OF MELANESIAN SOCIETY."

Before turning our attention to other places where the asymmetrical mode of descent may be in operation, we must consider how far this new reading of Rivers' Pentecost material affects his constructive plan of *The History of Melanesian Society*.

It is essential to the theme of Rivers' book that the dual organization with matrilineal descent had at one time a far wider distribution than at present.‡ This form of society, according to Rivers, was characterized by gerontocracy, and both sexual communism and a communistic attitude to property.§ Further, he considered the Pentecost system to be the most archaic of the systems recorded for Melanesia.¶ Much of the argument for the various historical strata that he built up was founded on this supposition. He therefore regretted that he had been unable to fathom the meaning of the *verava*, which he supposed to be an important modification of the dual organization, but curiously he disregarded the information that he had received which implied that a brother and a sister could not marry a sister and a brother.¶ Had he realized the importance of this grouping, and the significance of the

* C. B. Humphreys, *The Southern New Hebrides: an Ethnological Record* (1926).

† *Rept. Aust. Ass. Adv. Sci.*, 1892, p. 674.

‡ *Op. cit.*, vol. ii, p. 70.

§ *Op. cit.*, numerous references, and vol. ii, pp. 66, 67, 567.

¶ *Op. cit.*, vol. ii, p. 188.

¶ *See footnote, p. 539. (Op. cit., vol. ii, p. 75.)*

prohibition, he would scarcely have regarded the Pentecost system as an archaic form, for though this prohibition does not destroy a dual organization, it deprives it of two characters which have usually been considered essential to it, and which certainly have great social value, *i.e.* the right to marry either type of cross-cousin, and for brothers to exchange sisters as wives. In greater opposition still to his argument is the patrilineal nature of *verana* grouping. Unable to discover the nature of the *verana*, Rivers hazarded the suggestion that it might be a local group.* He obtained evidence that certain kinds of property were held in common by the *verana*, and regarded this as evidence of more general communism in the past. He suggested that "it is possible that the Pentecost *verana* and the divisions of the *vere* of the Banks Islands furnish a mechanism by means of which inheritance by all the members of the moiety of a certain generation became limited to those standing in certain nearer relationships. In other words, it is possible that the *verana* and similar groupings within the moiety have come into existence as the means of setting a limit to communistic ownership, and are a product of the process whereby individual ownership developed out of communism."†

With regard to the marriages that Rivers considered to be typical of the dual organization, and of which he saw evidence on Pentecost, *viz.* with the mother's brother's widow and the daughter's daughter or brother's daughter's daughter, it is clear that they will be regarded as of less fundamental importance when they are seen to be only two of the possible marriages permitted on a grouping basis than if considered to be enjoined marriages so habitual as to be responsible for the extreme complexity of the system.

It has been seen that the principal of reckoning descent bilaterally by one sex, and unilaterally by the other, causes the prohibition of the exchange of sisters as wives, and where cross-cousin marriage is allowed only one type instead of both is possible. This is so important a modification of the dual organization that the Pentecost system cannot be considered as a specially ancient form of that type of social organization. I do not propose to make any further criticism of the historical basis of Melanesian culture, but only wish to point out that those arguments that depend on the supposed archaic features of Pentecost society will need revision.

ASYMMETRICAL DESCENT IN OTHER AREAS.

Having considered the working of asymmetrical descent in Pentecost, we have now to enquire whether this principle will throw light on the social organization of other areas. It may be supposed that wherever a brother and a sister are prohibited from marrying a sister and a brother this regulation is due to asymmetrical descent: further, permission to marry one type of cross-cousin coupled with prohibition to

* *Op. cit.*, vol. ii, p. 81.

† *Op. cit.*, vol. ii, p. 149.

the other type points to the same cause. If, however, both types of cross-cousin marriage are permitted, but one is preferred, this would not be due to the method of tracing descent but to other social causes. No complete survey of cross-cousin marriage about the world is proposed, and it is probable that in many areas where the rules of descent allow both types of cross-cousin marriage, one type may be favoured at the expense of the other. In Assam, however, there seems to be considerable evidence that society is divided into a definite number of groups due to asymmetrical descent.

Assam.

It is not possible here to examine all the social organizations of Assam, of which there is a considerable variety, some having matrilineal others patrilineal clans. In some there is a dual organization, while in other tribes the clans are grouped in threes: among yet others there are eponymous families, and regulations that the men and women of each family respectively marry into definite named families, *i.e.* a brother and a sister cannot marry a sister and a brother. All that I propose to do is to consider whether the prohibition of one type of cross-cousin marriage

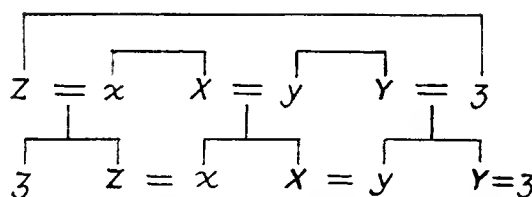


FIG. 6.—ASYMMETRY WITH PATRILINEAL DOMINANCE.

PATRILINEAL DESCENT AND THE PROHIBITION FOR A BROTHER AND A SISTER TO MARRY A SISTER AND A BROTHER: MARRIAGE WITH MOTHER'S BROTHER'S DAUGHTER ALLOWED, THEREFORE MARRIAGE WITH FATHER'S SISTER'S DAUGHTER NOT POSSIBLE. A MAN MARRIES INTO THE GROUP OF HIS MOTHER, A WOMAN INTO A GROUP TO WHICH NEITHER PARENT BELONGS.

while the other is encouraged, or the prohibition for a brother and a sister to marry with a sister and a brother, so common in Assam, and the association of clans in threes, can be regarded as conditioned by asymmetrical descent.

In many tribes with patrilineal descent marriage with the mother's brother's daughter is encouraged, while that with the father's sister's daughter is forbidden.* It will be seen in Fig. 6 that here we have exactly the opposite condition to that found in Pentecost. A man marries into the group of his mother, while a woman avoids the groups of both parents—so that, considered as a bar to marriage, a man recognizes only patrilineal descent while a woman recognizes bilateral descent. Where this rule holds there must be at least three exogamous divisions, though there may be four or more. I have not examined the kinship terms to see how far these fall into "classes."

* Mills, *The Lhota Nagas* (Macmillan, 1922), p. 173.

Siberia.

Among the Gilyak of Siberia there is an arrangement into marriage classes which appears to be dependent on asymmetrical descent uncomplicated by a dual organization. " . . . the clan forms a society or union, cemented by common right and marital duties of men related through their fathers, taking their wives from another similar group and giving their women in exchange to a third clan, all clans being thus exogamic and patriarchal in organization."* A man must take a wife from his mother's clan and actually he should marry his mother's brother's daughter (Sternberg found that this marriage occurred very frequently), while marriage with the father's sister's daughter is prohibited. Thus the exchange of sisters as wives is incidentally forbidden. If the prohibition to marry the father's sister's daughter is due to a fear of incest, it would be because the women will not marry into the clans of either parent, while the men only regard relationship through the father as a bar to marriage. Clans connected by marital ties, calling each other *paṃṃṣ*, customarily formed friendly alliances. Not only was a clan thus friendly with its own *ahmalk* [clan of the father-in-law] and *yuggi* [clan of the son-in-law], but the whole group formed by these two clans, together with others connected with *ahmalk* and *yuggi* by marriage, formed a friendly alliance.† The Gilyak are the only people mentioned by Czaplíčka in *Aboriginal Siberia* as having a social organization of this kind, and it should be noted that they are patrilineal; but some of their clans have intermarried with the Ainu, whose institutions show strong matrilineal features. No mention is made of a dual organization in this area.

America.

In eight patrilineal tribes in California a restricted form of cross-cousin marriage is practised, viz. the marriage with the mother's brother's daughter is popular, but that with the father's sister's daughter is prohibited. I have not seen any reference in literature to the prohibition for a brother and a sister to marry a sister and a brother, but when a man marries his mother's brother's daughter but not his father's sister's daughter, this prohibition must be implied. At first sight this organization seems comparable to those tribes in Assam, where, with patrilineal descent, marriage is allowed with the mother's brother's daughter but not with the father's sister's daughter. There are, however, considerable differences: the Californian moieties are not exogamous, and there appears to be no tendency for clans to be associated in a definite number of groups; and, further, in these eight tribes marriage is also allowed with the wife's brother's daughter. This latter secondary marriage has a wider distribution than that with the mother's brother's daughter in California, and Mr. Gifford's analysis of the kinship terms shows its close association to the kinship system—a system found in the Plains Area and the Eastern

* Czaplíčka, *Aboriginal Siberia* (1914), p. 43.

† *Op. cit.*, p. 50.

Woodland Area as well as in California.* Hence Mr. Gifford concluded that the marriage with the mother's brother's daughter has come about by means of a transference from father to son of rights to a second wife from the family of the first wife. The evidence seems conclusive and accounts for the unilateral type of cross-cousin marriage in California, but it does not account for the prohibition against marriage with the father's sister's daughter.† It is not necessary to regard this prohibition as dependent on ideas of incest, it may be an economic corollary to the right to marry the mother's brother's daughter (a right derived from the father): every woman being destined for her father's sister's son, she cannot at the same time be taken by her mother's brother's son (the moieties not being exogamous, these would not be the same persons or belonging to the same groups). It might, therefore, have proved necessary to forbid a man to marry his father's sister's daughter, because otherwise he would come into conflict with the girl's father's sister's daughter, who (in the absence of a dual organization) would be no relative of his own. A prohibition of this kind would have no relation to the prevalent ideas of incest. Among the matrilineal Hopi of Arizona,‡ marriage with the father's sister's daughter is allowed, but not that with the mother's brother's daughter, who stands in the relationship of child to her father's sister's son. If, however, it should be found that the patrilineal American tribes regard the marriage with the father's sister's daughter as incestuous, and the matrilineal tribes consider marriage with the mother's brother's daughter incestuous, then it would be necessary to re-examine the systems and consider whether the mode of tracing descent debarred one type of cross-cousin marriage while the other became habitual from economic causes.

SUMMARY.

The examination of the relationship terms and marriage regulations of Pentecost has shown that these are based on an asymmetrical method of tracing descent, with matrilineal dominance, resulting in a system in which society is divided into six classes. It has been suggested that the groupings of Assam, and perhaps the Gilyak of Siberia, are also due to asymmetrical descent. But all societies in which only one type of cross-cousin marriage is found are not necessarily asymmetrical in descent. With unilateral descent, social or economic conditions may favour one type of cross-cousin marriage at the expense of the other, but wherever one type of marriage is definitely forbidden, there we may expect to find asymmetry in descent.

* Spier, "The Distribution of Kinship Systems in North America," *Univ. Washington Publ. in Anthropol.*, vol. i, No. 2, August, 1925. In these systems certain cross-consins stand in the parent-child relationship.

† Gifford, *Univ. Calif. Publ. Am. Arch. and Eth.*, vols. xii and xviii.

‡ For this information I am indebted to Mrs. Barbara Aitken, who was kind enough to show me her unpublished notes on the Hopi Indians.

All forms of bilateral and asymmetrical descent may be regarded as compromise formations in distinction to the stricter unilateral (patrilineal or matrilineal) method of tracing descent, and seven variations of descent have been shown.

The Pentecost system may be regarded as a change from unilateral matrilineal descent in the direction of patriliney. It must be noted that it is the men who have recognized patrilineal descent as a bar to marriage, and have, therefore, restricted their marriage choice, while the women have conserved the ideas of incest that fitted a simple matrilineal society.

The condition in Assam may be regarded as a compromise towards matriliney in a patrilineal society, but it is not necessary to suppose that it is due to a change in the reverse direction from patriliney to matriliney: it need merely be noted that patriliney is here incomplete, the woman preserving bilateral (hence matrilineal) descent.* It is interesting to note that in both types there is a certain form of sex solidarity, *i.e.* the bilateral form of descent is held by that sex only that is not dominant for descent as a whole. In Pentecost, matrilineal descent is dominant and the women have made no change, but the men have adopted bilateral (hence patrilineal) descent. In those parts of Assam where patrilineal descent is dominant the men disregard matrilineal descent, but the women observe matrilineal as well as patrilineal descent as a bar to marriage. This feature in descent may be compared to a tendency in inheritance that is sometimes seen in either matrilineal or patrilineal society, *viz.* for the men to inherit from their fathers and the women from their mothers.

The asymmetrical principle of descent may be compared with the bilateral principle—in both the bars to marriage are increased, and in both marriage groups are formed. Considerable evidence is found for regarding the bilateral descent and the consequent groupings of Ambrym as the result of foreign influence on matrilineal dual organization,† and the asymmetrical descent of Pentecost with its six groups has a closer relationship still to the dual organization, in that it has retained a predominantly matrilineal character and that marriage with the mother's brother's widow is permitted. It may be supposed that whatever cause brought about the change from a dual organization to a six-class system with bilateral descent in Ambrym, also operated in producing the asymmetrical descent and six groups in Pentecost. If this is ascribed to the influence of immigrants, then in Pentecost it must be supposed that their numbers were less, or for some other reason they had

* A careful study of the social conditions as well as the history of the area would be necessary before suggesting in which direction the change has come about, but it must be remembered that the social organization of the Garo of Assam is more thoroughly determined by the matrilineal principle than probably that of any other known people: the exchange of sisters as wives is allowed among them. In the Garo we have an example of a people with unilateral (matrilineal) descent who, for economic reasons, favour one type of cross-cousin marriage (that with the mother's brother's daughter), but to whom the other type is not forbidden.

† B. Z. Seligman, *op. cit.*

a less powerful influence on the inhabitants and so were more thoroughly absorbed into the population. But the marriage laws of the dual organization were upset; men of mixed origin, or those who had suffered foreign influence, found themselves debarred from marriage with women of their father's group, because of some newly recognized close association between a man and his father's group: but as the women did not share this sentiment, a brother and a sister could no longer marry a sister and a brother, and hence only one type of cross-cousin marriage was possible. Whether this type (with the mother's brother's daughter) is or has been practised on Pentecost we do not know, but the presumption is that the marriage with the mother's brother's widow and with the mother's brother's daughter's daughter made the cousin marriage impossible, because of the strong feeling against marrying a woman and her daughter, a sentiment crystallized in the mother-in-law taboo.

Without a detailed examination of the cultures of Assam, any guess at the development of asymmetrical descent there would be worthless: it may, however, be noted that in many tribes it is associated with a dual organization.

Before concluding, consideration must be given to the possibility of the development of asymmetrical descent from the unilateral clan by means of the greater influence of the bilateral family (without a cultural change either from a dual organization or the influence of an immigrant people). There is some difficulty, however, in understanding the course of such a development. It is well known that inheritance of property and succession to office may pass in a manner other than that prescribed by recognized descent, without any apparent restriction of the marriage laws, which must come about with the adoption of asymmetrical or bilateral descent. Injunctions to marriage and the remarriage of widows may be prompted by reasons of property, for which it is not necessary to suppose foreign influence, but there is no evidence that such causes operate in the prohibitions to marriage. Prohibitions to marry certain relatives are based on the extension of the idea of incest: these are typically extended on a clan basis, *i.e.* exogamy.* If these were extended on the bilateral family basis then the result must be prohibition of marriage between all persons to whom relationship can be traced. Such a condition is found in the *taviti* of Eddystone (Solomon Is.): this we look upon as the result of tracing descent bilaterally without the dominance of either the matrilineal or patrilineal principle. It is obvious that where such a grouping is found only careful examination of the cultural area could show whether it had evolved directly from the bilateral family without any intermediate state with unilateral grouping or was due to a breakdown of the clan system. In the New Hebrides, however, all the evidence is in favour of culture-contact being the force which has brought the patrilineal principle into conflict with the matrilineal principle in clan organization, resulting in both the bilateral and the asymmetrical descent found in the area. It seems difficult to

* The important exception of extension to the ortho-cousin will be treated in a subsequent work.

suggest any mechanism to account for the other alternative, *i.e.* asymmetry being produced as the result of the influence of the bilateral family on the unilateral clan, so that it can justly be discarded.

The social systems considered have been seen to be regulated by the recognized form of descent, *not* by the typical marriage in each area. The typical marriages are those which may be preferred for economic or other reasons within the group of possible mates. The prohibitions to marriage are the logical outcome of the extended rules of incest, based in each system on the recognized rule of descent.

The importance of these findings, from the point of view of the theory of social organization, has been suggested in the introduction, and I hope to deal with these at a future date.

MISCELLANEA.

PROCEEDINGS OF THE ROYAL ANTHROPOLOGICAL INSTITUTE. 1928.

January 24th, 1928.

Annual Meeting. (See p. 1.)

January 3rd, 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Mr. H. J. E. PEAKE, President, in the Chair.

The minutes of the last meeting were read and confirmed.

Capt. T. A. JOYCE read his paper on "Further Researches in Lubaantun, 1927," illustrated by lantern slides.

The paper was discussed by Mr. MITCHELL HEDGES, Mrs. AITKEN, Professor DE MONTMORENCY, Miss DURHAM, Miss TILDESLEY, Miss WERNER, Mr. BRAUNHOLTZ and the PRESIDENT, and Capt. JOYCE replied.

A hearty vote of thanks was accorded to Capt. JOYCE for his valuable and interesting paper, and the Institute adjourned till January 17th.

January 17th, 1928.

Ordinary Meeting at 52, Upper Bedford Place

Mr. H. J. E. PEAKE, President, in the Chair.

The minutes of the last meeting were read and confirmed.

The election of the following as Ordinary Fellows of the Institute was announced : Mr. A. K. Bate, Mr. George G. Campion, Mr. A. T. Culwick, Mr. E. C. Figgs, Mr. A. S. Gillespie, Mr. A. J. Hicks Gower, Mr. Rupert A. Haig, Mr. George H. Hill, Rev. Neville Jones, Mr. R. H. S. Peter, Mr. W. T. A. Philpot, Mr. M. S. Seva Raman, Mr. J. K. G. Syme and Mr. C. E. Vulliamy.

Professor R. RUGGLES GATES read his paper on "Amerindian Crosses in Canada," illustrated by lantern slides and diagrams.

The paper was discussed by Dr. SHRUBSALL, Mrs. AITKEN, Miss DURHAM, Miss COLLUM, Miss MURRAY, Mr. G. POWELL and the PRESIDENT, and Professor RUGGLES GATES replied.

A hearty vote of thanks was accorded to Professor RUGGLES GATES for his valuable and interesting paper, and the Institute adjourned till January 24th.¹

¹ Annual General Meeting.

February 14th, 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Professor J. L. MYRES, President, in the Chair.

The minutes of the last meeting were read and confirmed.

Professor F. G. PARSONS read his paper on "The Increasing Size of the Skull," illustrated by lantern slides and diagrams.

The paper was discussed by Dr. SHRUBSALL, Professor LE GROS CLARK, Mrs. HODSON, Mr. PARKYN and the PRESIDENT, and Professor PARSONS replied.

A hearty vote of thanks was accorded to Professor PARSONS for his valuable and interesting paper, and the Institute adjourned till February 28th.

February 28th, 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Professor J. L. MYRES, President, in the Chair.

The minutes of the last meeting were read and confirmed.

The election of the following as Ordinary Fellows of the Institute was announced: Mr. A. W. Cunninghame, Mr. E. D. Evans, Capt. J. H. Green, Dr. B. J. Guha, Dr. O. W. Roberts and Mr. Stuart A. Wolfenden.

Mr. E. R. TRATMAN read his paper on "Avelines Hole, a late Upper Palæolithic Station in Somerset," illustrated by lantern slides.

The paper was discussed by Professor PARSONS, Dr. SHRUBSALL, Dr. HADDON, Miss DURHAM and Mr. BESTERMAN.

Professor A. VAN GENNEP was present, and addressed the meeting on the "Folk Arts Congress at Prague."

A hearty vote of thanks was accorded to Mr. TRATMAN for his lucid and interesting paper, and the Institute adjourned till March 13th.

March 13th, 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Professor J. L. MYRES, President, in the Chair.

The minutes of the last meeting were read and confirmed.

Professor E. H. L. SCHWARTZ delivered his lecture on "Bushman Types," illustrated by lantern slides.

The paper was discussed by Sir ARTHUR KEITH, Major VISCHER, Mr. E. TORDAY and the PRESIDENT, and Professor SCHWARTZ replied.

A hearty vote of thanks was accorded to Professor SCHWARTZ for his interesting paper, and the Institute adjourned till March 27th.

March 27th, 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Professor J. L. MYRES, President, in the Chair.

The minutes of the last meeting were read and confirmed.

Professor Sir ARTHUR KEITH read his paper on "Human Remains Discovered by Sir Aurel Stein in Ancient Cemeteries of the Taklamakan Desert," illustrated by lantern slides and specimens.

The paper was discussed by Professor BRYCE, Professor PARSONS, Dr. SHRUBSALL, Dr. HADDON and the PRESIDENT, and Sir ARTHUR KEITH replied.

A hearty vote of thanks was accorded to Professor KEITH for his valuable and interesting paper, and the Institute adjourned till April 17th.

April 17th, 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Professor J. L. MYRES, President, in the Chair.

The minutes of the last meeting were read and confirmed.

Rev. F. R. BISHOP read his paper on "Native Life in Mandated Territory of New Guinea," illustrated by lantern slides.

The paper was discussed by Mr. PEAKE, Mr. BENSLEY, Capt. FULLER, Miss PULLEN-BURRY and Mrs. AITKEN, and Mr. BISHOP replied.

A hearty vote of thanks was accorded to Mr. BISHOP, and the Institute adjourned till April 24th.

April 24th, 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Professor J. L. MYRES, President, in the Chair.

The minutes of the last meeting were read and confirmed.

The election of the following as Ordinary Fellows of the Institute was announced : Miss Edith Clark, Major Horace G. Powell-Cotton, Mr. D. Storrs-Fox, Rev. Jesse Hipperson and Mr. Joseph Unwin.

Mr. MILES C. BURKITT read his paper on "South Africa's Past in Stone and Paint," illustrated by lantern slides.

The paper was discussed by Professor SOLLAS, Professor SCHWARTZ, Mr. HOBLEY, Miss DURHAM, Professor DE MONTMORENCY, Mr. BRAUNHOLTZ, Mr. LEAKEY, Mr. R. WEBSTER (representing the High Commissioners of South Africa) and the PRESIDENT, and Mr. BURKITT replied.

A hearty vote of thanks was accorded to Mr. BURKITT for his valuable and interesting paper, and the Institute adjourned till May 8th.

May 8th, 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Mr. H. J. E. PEAKE, Past-President, in the Chair.

The minutes of the last meeting were read and confirmed.

Mr. E. TORDAY read his paper on "Dualism in Western Bantu Religion and Social Organization."

The paper was discussed by Rev. E. W. SMITH. Dr. STANNUS. Mr. BRAUNHOLTZ and Mr. PERRY. and Mr. TORDAY replied.

A hearty vote of thanks was accorded to Mr. TORDAY for his valuable and interesting paper. and the Institute adjourned till May 22nd.

May 22nd, 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Mr. H. J. E. PEAKE, Past-President, in the Chair.

The minutes of the last meeting were read and confirmed.

Professor J. L. MYRES read his paper on "Ancient Greek Physical Types," illustrated by lantern slides.

The paper was discussed by Dr. GARSON. Professor PARSONS, Dr. MUMFORD. Miss DURHAM, Professor RUGGLES GATES, Mr. PEAKE and Professor DE MONTMORENCY, and Professor MYRES replied.

A hearty vote of thanks was accorded to Professor MYRES for his valuable and interesting paper, and the Institute adjourned till June 5th.

June 5th, 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Professor J. L. MYRES, President, in the Chair.

The minutes of the last meeting were read and confirmed.

Mr. G. W. B. HUNTINGFORD read his paper on "A General Survey of the Nandi-speaking Tribes of Kenya and Uganda," illustrated by photographs.

The paper was discussed by Mr. BALFOUR. Mr. DRIBERG and the PRESIDENT, and Mr. HUNTINGFORD replied.

A hearty vote of thanks was accorded to Mr. HUNTINGFORD for his interesting paper, and the Institute adjourned till June 19th.

June 19th, 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Professor J. L. MYRES, President, in the Chair.

The minutes of the last meeting were read and confirmed.

Rev. NEVILLE JONES gave a general survey of the Stone Implements of South Africa. and Col. W. E. HARDY read his paper dealing with his exhibits.

The paper was discussed by Mr. BURKITT. Mr. HOBLEY, Dr. HADDON, Mr. BRAUNHOLTZ and Miss CATON-THOMPSON. and the Rev. NEVILLE JONES and Col. W. E. HARDY replied.

A hearty vote of thanks was accorded to the lecturers for their interesting and lucid description of the stone implements of South Africa, and for the beautiful specimens they had exhibited, and the Institute adjourned till July 3rd.

July 3rd. 1928.

Special Meeting.

Professor J. L. MYRES, President, in the Chair.

Dr. E. H. HUNT gave an address on the "Rock-hewn Temples of Ajanta and Ellora," illustrated by beautiful lantern slides, photographs and exhibits. Mr. K. DE B. CODRINGTON spoke on the Architecture and Sculpture of the Temples.

A hearty vote of thanks was accorded to Dr. HUNT and Mr. CODRINGTON for the valuable and interesting paper and beautiful lantern slides and exhibits, and the Institute adjourned till the Autumn.

October 3rd. 1928.

By kind invitation of the Director of the Wellcome Historical Medical Museum, a *Conversazione* was held at the Museum at 8.30 p.m.

Miss W. BLACKMAN gave a demonstration of Magico-Medical Practices of the Fellahin.

October 23rd. 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Professor J. L. MYRES, President, in the Chair.

The minutes of the last meeting were read and confirmed.

Miss M. L. TILDESLEY read her paper on "Racial Anthropometry: a plan to obtain International Uniformity of Method."

The paper was discussed by Sir ARTHUR KEITH, Professor PARSONS, Mr. PEAKE, Miss COLLUM and the PRESIDENT, and Miss TILDESLEY replied.

A hearty vote of thanks was accorded to Miss TILDESLEY for her lucid and interesting paper, and the Institute adjourned till November 6th.

November 6th. 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Miss DURHAM in the Chair.

The minutes of the last meeting were read and confirmed.

Capt. E. L. GRUNING read his paper on "The British Museum Expedition to British Honduras, 1928," illustrated by lantern slides and specimens.

The paper was discussed by Miss DURHAM, Dr. RUSHTON PARKER, Mr. GARFITT, Mr. BRAUNHOLTZ and Mr. HORNIMAN, and Capt. GRUNING replied.

A hearty vote of thanks was accorded to Capt. GRUNING for his valuable and interesting paper, and the Institute adjourned till November 20th.

November 20th. 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Mr. H. J. E. PEAKE, Past-President, in the Chair.

The minutes of the last meeting were read and confirmed.

The election of the following as Ordinary Fellows of the Institute was announced : H.R.H. Princess Georges of Greece and Denmark. Dr. Henry M. Ami, Mr. Oliver Davies, Mr. Louis Fourie, Dr. J. C. M. Gwen. Major Alfred H. Horsfall, Mr. Eslyn Marcar Marjoribanks, Major Edward Albert Marples, Dr. Merell Philippa Middlemore, Mr. John Maurice Reynolds, Mr. Page Rowe and Mr. F. S. Thornton.

Mr. A. LESLIE ARMSTRONG read his report on "Excavations in the Pinhole Cave, Cresswell, and the Recent Discovery of an Engraving of a Masked Human Figure," illustrated by lantern slides and specimens.

The paper was discussed by Mr. HAZZLEDINE WARREN, Mr. PARKYN, Miss CATON-THOMPSON, Mr. HORNELOWER and Mr. PEAKE, and Mr. ARMSTRONG replied.

A hearty vote of thanks was accorded to Mr. ARMSTRONG for his valuable and interesting paper, and the Institute adjourned till the Huxley Lecture on November 27th.

December 4th, 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Professor J. L. MYRES, President, in the Chair.

The minutes of the last meeting were read and confirmed.

Sir J. HUBERT MURRAY, K.C.M.G., read his paper on "Papuan Criminals and British Justice."

The paper was discussed by Professor SELIGMAN, Professor MALINOWSKI, Lord OLIVIER, Miss DURHAM and the PRESIDENT, and Sir HUBERT MURRAY replied.

A hearty vote of thanks was accorded to Sir HUBERT MURRAY for his interesting paper, and the Institute adjourned till December 18th.

December 18th, 1928.

Ordinary Meeting at 52, Upper Bedford Place.

Dr. A. C. HADDON, Past-President, in the Chair.

The minutes of the last meeting were read and confirmed.

The election of the following as Ordinary Fellows of the Institute was announced : Mr. J. E. Daniel, Mr. W. Norman Davies, Mr. C. W. Olliver and Professor J. Simpson.

Miss R. M. FLEMING read her paper on "A Study of Growth in Children : its Ethnological and Educational Significance. An Analysis of six years' consecutive Measurement."

The paper was discussed by Sir ARTHUR KEITH, Dr. HADDON, Mr. PEAKE, Miss DURHAM and Mr. FALLAIZE, and Miss FLEMING replied.

A hearty vote of thanks was accorded to Miss FLEMING for her valuable paper, and the Institute adjourned till January 15th, 1929.

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